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UK METEOROLOGICAL OFFICE
GLOBAL DATA MONITORING REPORT

OCTOBER 2000

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis (the current cut-off time is approximately 7.2 hours after each analysis time). The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At the UK Met. Office, we monitor SYNOP pressure after it has been interpolated to our Global NWP Model's surface height. For most synoptic stations (about 75%), the surface pressure (at the model surface) is calculated from the reported station-level pressure, or, if this is not available, the height of a standard pressure-level (e.g. 850 hPa or 700 hPa). If neither of these are available, or if the reported station-level pressure is deemed unreliable, the reported mean sea-level pressure is used (about 25% of SYNOPs).

Aircraft observations

Tables 4A (300-150 hPa) and 4B (1000-301 hPa) contain lists of statistics calculated from data received from all airline carriers.

Figures 3A (300-150 hPa) and 3B (1000-301 hPa) show 10 degree lat/long box average numbers of aircraft reports in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS) received per day throughout the month at Bracknell and assimilated into model runs. Observations with a vector wind difference (compared with the model background field) of >60 m s^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4A-7A (300-150 hPa) and 4B-7B (1000-301 hPa) show wind statistics for AIREP/ASDAR in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS). Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-39 show sounding statistics from the polar orbitting satellite NOAA-15. Figure 25 shows the mean daily number of ATOVS soundings, and figures 26-39 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.
N.B. The sounding data is bias-corrected (and thinned) before being assimilated in the UKMO NWP model.

Figure		Weighting function peak (hPa)
26	Mean	Surface (HIRS8)
27	SD	Surface (HIRS8)
28	Mean	700 (HIRS15)
29	SD	700 (HIRS15)
30	Mean	500-700 (HIRS11)
31	SD	500-700 (HIRS11)
32	Mean	400 (HIRS4)
33	SD	400 (HIRS4)
34	Mean	700 (AMSUA5)
35	SD	700 (AMSUA5)
36	Mean	300 (AMSUA7)
37	SD	300 (AMSUA7)
38	Mean	100 (AMSUA9)
39	RMS	100 (AMSUA9)

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 have been replaced by statistics for GOES-8 and GOES-9.
5. April 96. 500 km and 120 km SATEMs replaced by 120 km resolution temperature profiles produced locally from the radiances disseminated by NESDIS.
6. February 97 Monitoring statistics for Meteosat 5 have been replaced by statistics for Meteosat 6.
7. Sept 97 Monitoring statistics for NOAA-12 removed. Figures 25-27 now show data for NOAA-11
8. January 1998. Increase in resolution of UKMO global forecast model.
9. April 1998. GOES winds ceased on 2nd March 1998, and were replaced with GOES high resolution winds from 15th.
10. June 1998. Monitoring statistics for Meteosat-6 were replaced by monitoring statistics for Meteosat-7, from 3rd June.
11. June 1998. Corrections in our processing of radiosonde data resulted in a decrease in the number of 500hPa geopotential heights in Figure 8 of about 230 per 24 hours (compared with previous reports), and a small increase in the number of 300hPa winds in Figure 9.
12. July 1998. Meteosat-5 began transmitting winds from 2nd July, at 63 degrees East (over the Indian ocean), and this data is included in the statistics.
13. July 1998. GOES-9 (at 135W) was replaced mid-month by GOES-10 (initially at 105W, moving towards 135W).
14. February 1999. Problems with NOAA-11, and TOVS data ceased to be assimilated from 26 February.
15. March 1999. UKMO introduced 3-D VAR assimilation system on 29 March, and also began assimilating ATOVS data from NOAA-15.
16. May 1999. Included statistics for ATOVS sounding data from NOAA-15.
17. September 1999. Included statistics for high resolution visible winds from Meteosat-5 and Meteosat-7.
18. October 1999. The 3-D VAR assimilation system was upgraded on 19 October, including improvements in the assimilation of ATOVS radiances, use of SSM/I surface wind speed, an improvement in the calculation of surface pressure for SYNOPs, and thinning and revision of observation errors of aircraft data.
19. November 1999. High resolution visible winds from Meteosat-5 and Meteosat-7 removed until used operationally.
20. April 2000. Aireps in Table 4 and Figures 3-7 split into ranges 300-150 hPa (A) and 1000-301 hPa (B).
21. September 2000. Corrected an error affecting the mean positions of a minority of buoys in Table 2.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: OCTOBER 2000

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from UKMO global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.|bias|
$\geq$ 4 hPa (pressure),
$\geq$ 5 m s^{-1} (wind speed),
$\geq$ 30 degrees (direction).

2.SD
$\geq$ 6 hPa (pressure),
$\geq$ 80 degrees (direction).

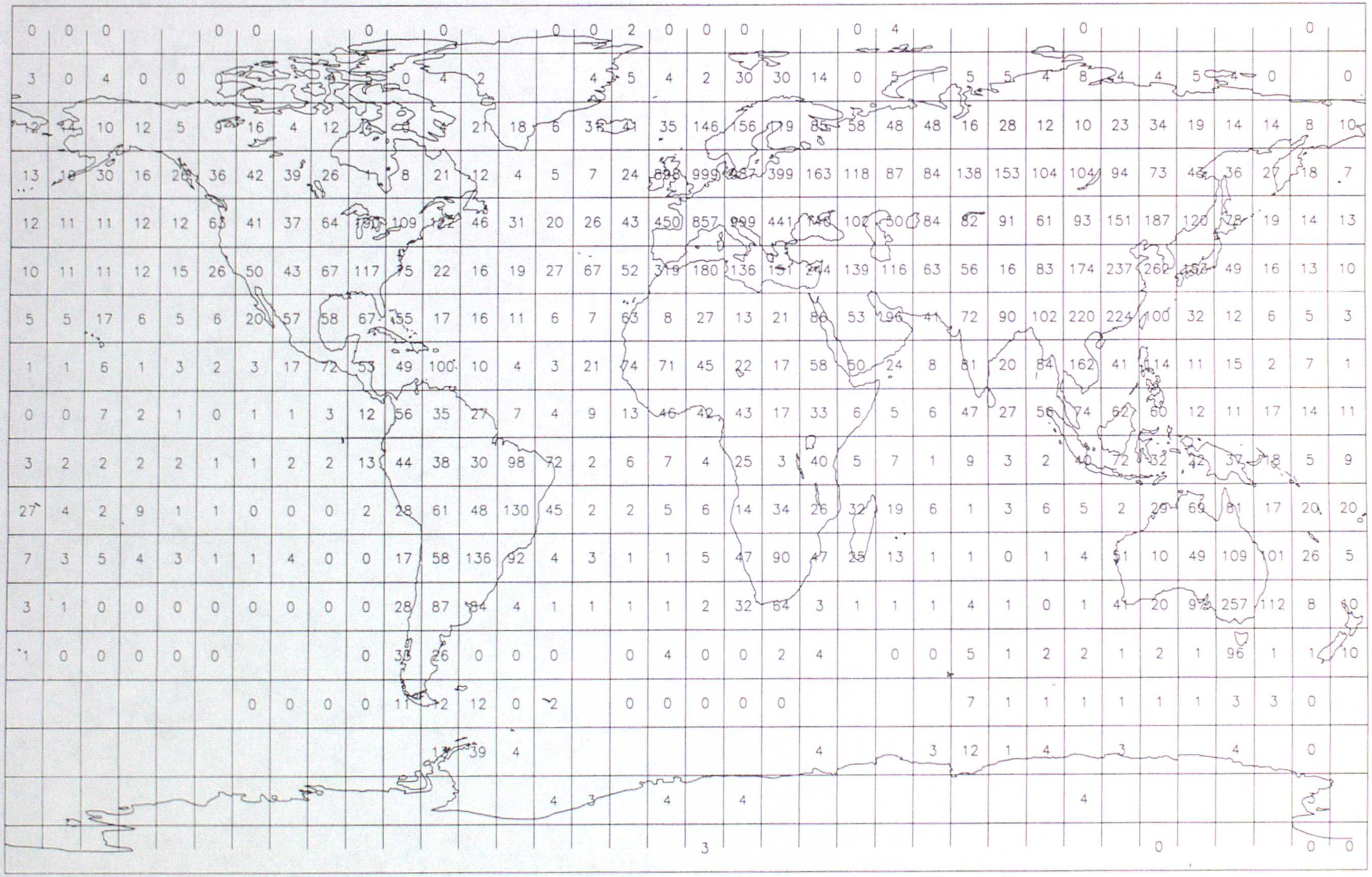
3.PGE ≥ 25

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
BATO	ALL	P	SUR	33	12	36	0.8	-11.0	11.0
BOAB	ALL	P	SUR	37	1	3	2.4	-4.2	4.9
CG2522	ALL	P	SUR	37	5	14	4.2	-4.7	6.3
C6RF6	ALL	P	SUR	38	0	0	2.9	-5.5	6.2
DVRVW6D	ALL	P	SUR	33	0	0	1.1	6.4	6.5
ELVJ9	ALL	P	SUR	53	0	0	2.0	-4.7	5.1
LAFQ5	ALL	P	SUR	68	1	1	5.3	-4.2	6.8
MXAR9	ALL	P	SUR	72	0	0	1.3	4.6	4.8
MXBD6	ALL	P	SUR	94	0	0	0.6	-4.1	4.1
PCAG	ALL	P	SUR	46	0	0	0.9	-5.4	5.4
PDAH	ALL	P	SUR	29	0	0	0.6	-7.0	7.0
P3FX8	ALL	P	SUR	59	0	0	0.8	-4.5	4.6
P3YS5	ALL	P	SUR	49	0	0	1.3	4.9	5.0
UAIS	ALL	P	SUR	34	0	0	2.1	-5.2	5.6
UBCB	ALL	P	SUR	31	0	0	1.9	8.6	8.8
UDUK	ALL	P	SUR	46	0	0	1.6	4.4	4.7
UDYN	ALL	P	SUR	29	0	0	1.0	6.7	6.8
UICO	ALL	P	SUR	59	10	17	7.0	-0.9	7.1
VCJM	ALL	P	SUR	21	21	100			
VCRT	ALL	P	SUR	26	0	0	1.6	-5.0	5.3
VGRT	ALL	P	SUR	32	6	19	9.5	-2.1	9.7
VGXD	ALL	P	SUR	22	15	68	1.2	1.4	1.9
VRVI2	ALL	P	SUR	54	0	0	0.9	6.1	6.2
WCN4995	ALL	P	SUR	34	0	0	2.2	4.4	4.9
62101	ALL	P	SUR	561	93	17	6.2	2.0	6.5
8PPF	ALL	P	SUR	32	0	0	1.3	-4.2	4.4
9MBX5	ALL	P	SUR	28	0	0	2.5	7.1	7.6
9VIH	ALL	P	SUR	33	3	9	4.5	-4.1	6.0
9VRA	ALL	P	SUR	57	0	0	1.3	-4.6	4.8
WIND SPEED									
C6KE3	ALL	SPEED	SUR	21	0	0	4.4	5.8	7.3
C6NI3	ALL	SPEED	SUR	23	0	0	6.5	7.2	9.7
DDPH	ALL	SPEED	SUR	65	0	0	7.7	5.7	9.6
DGCDFD	ALL	SPEED	SUR	35	0	0	4.7	9.7	10.8
DIOB	ALL	SPEED	SUR	51	1	2	6.3	5.7	8.5
ELXS5	ALL	SPEED	SUR	28	0	0	5.7	15.8	16.8
GJPS	ALL	SPEED	SUR	31	1	3	6.0	5.6	8.2
JKPS	ALL	SPEED	SUR	64	1	2	4.3	5.6	7.1
MWPM2	ALL	SPEED	SUR	20	0	0	6.3	10.7	12.4
OZWP2	ALL	SPEED	SUR	41	2	5	7.4	8.9	11.5
PPSO	ALL	SPEED	SUR	41	0	0	5.6	6.3	8.5
SXYY	ALL	SPEED	SUR	26	1	4	6.0	10.8	12.3
TSMU	ALL	SPEED	SUR	43	0	0	3.3	5.1	6.0
3FWP3	ALL	SPEED	SUR	28	0	0	3.8	5.0	6.3
62108	ALL	SPEED	SUR	623	3	0	3.7	-7.5	8.4
63116	ALL	SPEED	SUR	34	0	0	2.9	-5.9	6.5
9MBQ	ALL	SPEED	SUR	58	2	3	7.0	6.3	9.4
9VVI	ALL	SPEED	SUR	26	0	0	4.4	8.6	9.6
WIND DIRECTION									
ELNU6	ALL	DIRN.	SUR	23	0	0	42.3	-30.1	52.0
3FAV9	ALL	DIRN.	SUR	22	0	0	40.3	-33.0	52.1
62101	ALL	DIRN.	SUR	187	0	0	43.0	31.4	53.3
62131	ALL	DIRN.	SUR	53	0	0	13.0	31.5	34.1
9KEB	ALL	DIRN.	SUR	34	0	0	48.3	59.0	76.2

AVAILABILITY – SHIP/SYNOP – OCTOBER 2000
MAIN HOURS ONLY
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 21647

FIGURE 1



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3	1	0	0	0	0	0	0	0	0	28	87	84	4	1	1	1	1	2	32	64	3	1	1	1	4	1	0	1	41	20	95	257	112	8	10
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						0	0	0	0	11	12	12	0	2		0	0	0	0	0					7	1	1	1	1	1	1	3	3	0	
											17	39	4								4			3	12	1	4		3			4		0	
														4	3		4		4									4						3	
																		3												0				0	0

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH: OCTOBER 2000

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA : NOBS ≥ 20 , and one or more of the following:

1.|bias| ≥ 4 hPa (pressure),
≥ 5 m s^{-1} (wind speed),
≥ 30 degrees (direction).

2.SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).
3.PGE ≥ 25.

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
17539	-27.8	-8.4	ALL	P	SUR	132	39	30	3.5	-0.6	3.5
17546	-36.7	68.1	ALL	P	SUR	340	0	0	1.1	-5.3	5.4
17642	-39.6	-0.7	ALL	P	SUR	338	1	0	1.0	4.6	4.7
31953	-20.8	-40.7	ALL	P	SUR	812	0	0	3.3	6.8	7.5
33622	-23.9	-7.7	ALL	P	SUR	88	33	38	0.7	0.0	0.7
46561	31.4	-172.1	ALL	P	SUR	212	0	0	0.9	-4.5	4.6
46608	58.1	-140.4	ALL	P	SUR	149	12	8	7.2	-4.8	8.6
46624	56.9	165.3	ALL	P	SUR	470	109	23	6.2	-1.2	6.3
56542	44.7	-63.6	ALL	P	SUR	33	0	0	0.6	-4.9	5.0
74536	42.9	-83.0	ALL	P	SUR	31	29	94	0.4	14.3	14.3
WIND SPEED											
17557	-39.0	74.4	ALL	SPEED	SUR	747	0	0	2.7	-7.5	8.0
41505	26.3	-65.1	ALL	SPEED	SUR	159	3	2	7.9	7.1	10.6
41613	13.3	-36.6	ALL	SPEED	SUR	114	66	58	5.0	16.6	17.4
41615	15.7	-50.1	ALL	SPEED	SUR	156	15	10	7.3	5.2	8.9
WIND DIRECTION											
32650	3.5	-106.2	ALL	DIRN.	SUR	70	0	0	12.7	-31.3	33.7
41523	26.4	-63.2	ALL	DIRN.	SUR	135	4	3	91.9	27.1	95.8
52643	16.8	126.0	ALL	DIRN.	SUR	47	2	4	38.4	50.7	63.6

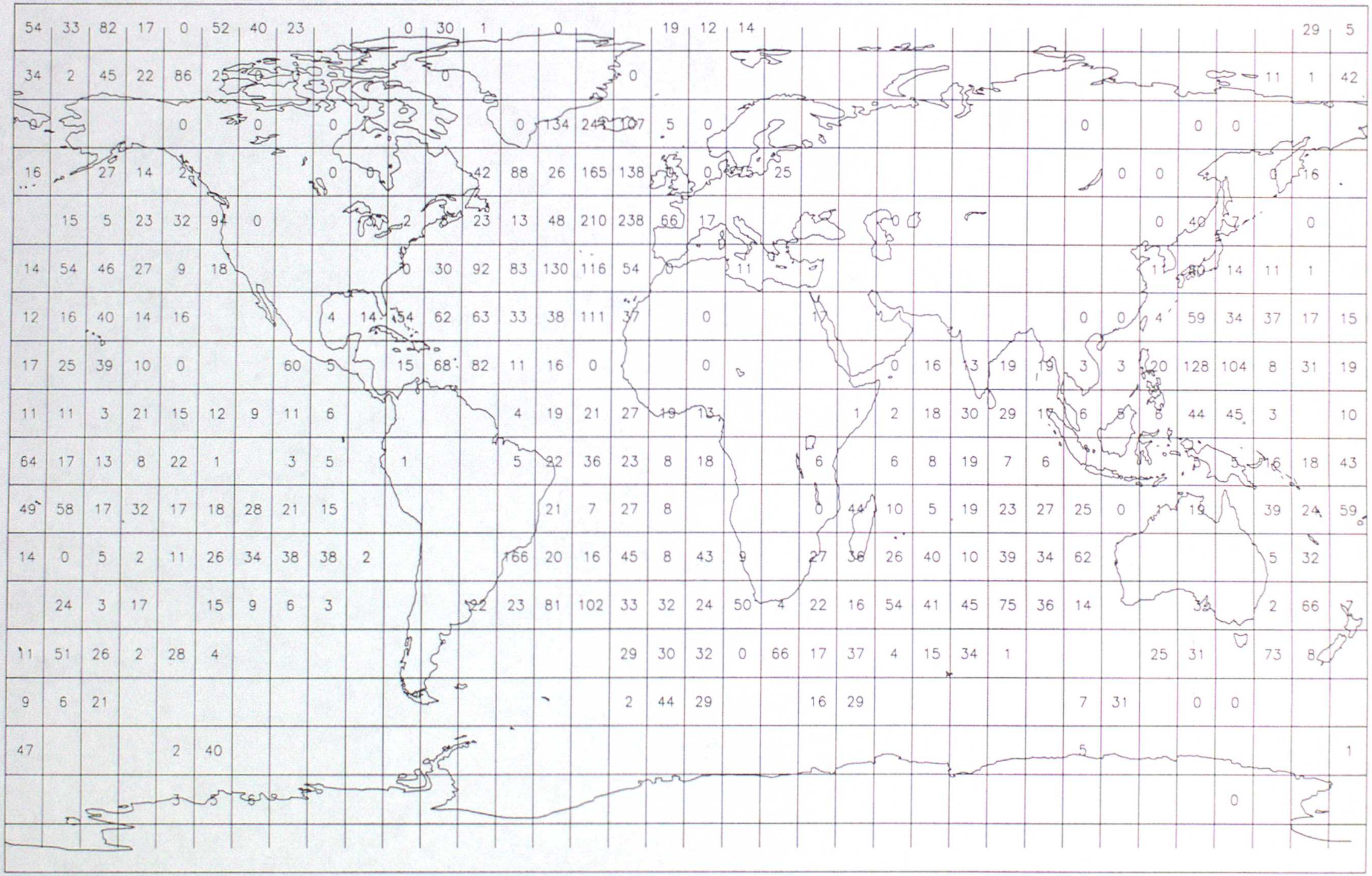
AVAILABILITY – DRIFTER – OCTOBER 2000

FIGURE 2

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 8733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11 11 3 21 15 12 9 11 6 4 19 21 27 19 13 1 2 18 30 29 17 6 6 6 44 45 3 10
64 17 13 8 22 1 3 5 1 5 32 36 23 8 18 6 6 8 19 7 6 5 16 18 43
49 58 17 32 17 18 28 21 15 21 7 27 8 0 44 10 5 19 23 27 25 0 19 39 24 59
14 0 5 2 11 26 34 38 38 2 166 20 16 45 8 43 9 27 38 26 40 10 39 34 62 5 32
24 3 17 15 9 6 3 22 23 81 102 33 32 24 50 4 22 16 54 41 45 75 36 14 33 2 66 7
11 51 26 2 28 4 29 30 32 0 66 17 37 4 15 34 1 25 31 73 8
9 6 21 2 44 29 16 29 7 31 0 0
47 2 40 5 1
3 3 6 0

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH: OCTOBER 2000

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Surface pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged excluding those with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.|bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
62056	32.8N	21.8E	625	S8	109	1	1	2	2.1	-5.4	5.8
63602	3.1N	30.9E	1204	S	60	56	93	40	9.6	-7.7	12.3
63680	0.3N	32.6E	1144	M	32	0	0	0	0.8	-8.5	8.5
68030	18.5S	25.6E	1071	8	56	0	0	0	1.3	5.1	5.3
68038	20.5S	26.0E	903	8	63	0	0	0	1.0	4.4	4.5
68106	23.6S	15.1E	407	S8	77	21	27	0	1.3	0.0	1.3
68338	26.9S	24.6E	1234	S8	53	53	100	8			
68396	26.5S	31.3E	641	S8	48	1	2	4	1.4	4.2	4.4
68902	37.1S	12.3W	23	M	39	10	26	8	4.0	0.7	4.1

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
30320	56.9N	105.7E	669	MS	92	48	52	0	2.1	0.9	2.3
30554	54.5N	113.6E	995	MS	123	1	1	27	4.7	5.4	7.2
30967	49.9N	115.8E	623	MS	89	0	0	1	1.4	-5.8	6.0
40726	36.8N	45.7E	1384	MS	100	1	1	2	1.5	4.2	4.5
40741	36.6N	61.2E	235	MS	105	0	0	0	1.1	-4.3	4.4
41254	23.1N	57.7E	1755	S	86	86	100	0			
41396	16.0N	48.9E	700	M	62	1	2	3	1.5	6.7	6.9
41466	13.7N	44.1E	1402	8	62	0	0	0	0.6	-5.8	5.8
41696	29.0N	66.6E	2015	M	44	20	45	0	0.7	-0.9	1.1
44416	28.6N	81.6E	720	MS	65	0	0	2	1.5	4.4	4.6
47022	40.8N	128.2E	1200	S	86	0	0	0	0.9	4.8	4.9
51334	44.6N	82.9E	321	M	123	0	0	33	3.0	4.2	5.2
51495	43.5N	91.6E	874	M	122	1	1	2	2.3	8.8	9.1
52602	38.8N	93.4E	2734	S	123	0	0	0	1.2	-5.4	5.5
52955	35.6N	100.8E	3201	S	123	1	1	0	0.8	12.8	12.8
54587	39.1N	123.2E	5	M	118	0	0	2	1.5	-4.4	4.6
56146	31.6N	100.0E	339	S	122	122	100	0			
56385	29.5N	103.3E	3049	S	122	0	0	51	1.5	-4.2	4.5
56444	28.5N	98.9E	3488	S	122	59	48	37	0.5	13.7	13.7
56462	29.0N	101.5E	2994	S	122	0	0	0	1.3	9.1	9.2
57006	34.6N	105.8E	1143	M	122	0	0	0	1.5	4.0	4.3

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	MS	25	0	0	4	1.9	-6.0	6.3
82326	3.8S	62.1W	48	MS	86	0	0	0	1.3	4.7	4.9
82445	4.3S	55.6W	45	MS	92	0	0	0	1.2	4.0	4.2
83235	12.4S	46.4W	604	MS	90	0	0	0	1.1	7.2	7.3
83319	14.7S	52.4W	315	MS	90	0	0	0	1.2	5.2	5.3
83332	14.1S	46.4W	826	MS	90	15	17	0	0.8	13.6	13.6
83361	15.6S	56.1W	151	MS	90	0	0	4	1.4	4.9	5.1
83408	14.3S	43.8W	447	MS	86	0	0	0	0.8	11.6	11.6
83488	17.8S	42.9W	1097	MS	92	92	100	0			
83531	18.6S	46.5W	940	MS	87	1	1	1	1.0	-6.3	6.4
83587	19.9S	43.9W	850	MS	92	0	0	4	1.6	-6.6	6.8
83773	23.1S	48.9W	793	MS	91	0	0	1	1.3	-10.1	10.2
83836	25.5S	50.6W	837	MS	91	0	0	0	0.8	-4.9	5.0
83953	30.9S	55.5W	231	MS	91	0	0	0	1.0	-10.9	10.9
84377	3.8S	73.3W	125	MS	114	1	1	0	1.3	4.7	4.9
84401	5.2S	80.6W	49	MS	116	0	0	0	0.9	4.3	4.4
84425	5.9S	76.1W	179	MS	87	0	0	1	1.5	4.8	5.0
84455	6.5S	76.4W	281	MS	85	1	1	1	1.4	5.7	5.9
84472	7.1S	78.5W	2620	S	53	0	0	0	0.9	-6.3	6.4
84474	7.2S	76.7W	350	S	82	2	2	2	1.4	10.0	10.1

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
84501	8.1S	79.0W	26	MS	84	0	0	6	0.8	4.0	4.1
84686	13.6S	72.0W	3248	S	114	0	0	0	0.9	-5.3	5.4
84688	13.7S	73.4W	3444	S	46	1	2	0	2.3	-10.9	11.1
84720	14.9S	75.0W	567	MS	57	0	0	2	1.3	4.2	4.4
84782	18.1S	70.3W	468	MS	91	0	0	0	1.3	8.7	8.8
85140	14.3S	67.4W	140	MS	60	0	0	2	1.2	4.2	4.4
85141	14.5S	67.6W	204	MS	58	0	0	0	1.3	5.1	5.3
85264	18.5S	64.1W	1998	S	56	56	100	0			
85312	19.8S	63.9W	992	S	44	2	5	0	1.3	-8.3	8.4
85406	18.3S	70.3W	55	M	115	0	0	0	1.2	5.3	5.4
85418	20.5S	70.2W	48	M	120	1	1	1	0.8	4.0	4.1
85432	22.5S	68.9W	2320	S8	84	0	0	1	1.3	5.5	5.7
85836	43.6S	71.8W	277	M	41	0	0	0	1.9	4.5	4.9

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
70194	66.6N	145.3W	431	S	82	82	100	0			
71060	65.6N	118.1W	230	MS	92	92	100	0			
71506	66.9N	136.3W	720	MS	122	0	0	11	1.7	-4.1	4.4
71583	68.3N	122.1W	530	MS	43	0	0	12	1.6	-4.4	4.7
71815	48.6N	58.6W	60	MS	123	0	0	43	1.1	4.0	4.1
76118	30.4N	109.7W	1040	MS	40	0	0	0	0.8	-10.7	10.7
76658	19.2N	103.7W	494	MS	39	0	0	0	0.7	6.2	6.2
76743	18.0N	92.9W	10	MS	87	0	0	8	1.3	5.9	6.0
76773	17.8N	97.8W	1650	MS	38	0	0	0	0.8	4.4	4.5
76903	14.9N	92.3W	118	MS	101	0	0	33	0.7	5.8	5.8
78627	15.3N	91.5W	1901	S	24	1	4	25	0.7	4.1	4.2

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
92010	6.1S	145.4E	1587	M	50	0	0	0	0.7	10.4	10.4
94130	14.8S	131.9E	120	MS	94	0	0	51	1.0	5.6	5.7
94868	37.8S	145.0E	35	MS	124	0	0	0	0.7	10.1	10.1
96505	3.7N	115.7E	910	S8	43	42	98	0	0.0	-0.3	0.3
97378	10.7S	123.1E	1	MS	33	31	94	0	0.7	-14.2	14.2

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.8N	9.7E	671	MS	92	1	1	0	0.9	7.7	7.8
06605	47.1N	7.1E	1599	S8	124	0	0	46	1.0	-4.5	4.6
06685	47.0N	9.1E	515	MS	124	0	0	2	1.2	5.7	5.8
10557	50.5N	11.1E	845	S8	372	372	100	0			
12140	54.4N	18.7E	2	MS	122	0	0	0	0.6	7.6	7.6
13269	44.3N	19.9E	176	MS	119	1	1	1	1.1	7.6	7.7
13593	41.3N	22.4E	1031	M	25	1	4	88	1.3	-5.1	5.3
14554	44.9N	18.4E	140	S	55	2	4	0	0.7	-13.1	13.1
14650	43.8N	18.0E	972	S	61	58	95	0	1.5	-11.0	11.1
16470	36.8N	12.0E	191	MS	88	0	0	0	0.8	-4.3	4.4
17092	39.8N	39.5E	1218	S8	123	0	0	0	0.9	7.6	7.7

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89264	71.4S	68.9W	780	S	66	1	2	0	1.8	9.4	9.6
89266	72.2S	60.3W	91	S	264	193	73	0	6.8	-9.9	12.0
89272	74.8S	71.5W	1369	S	255	255	100	0			
89661	73.1S	169.6E	200	S	44	0	0	0	2.0	8.0	8.2
89666	76.7S	163.0E	200	S	41	41	100	0			
89744	74.0S	43.0E	3353	S	284	0	0	0	0.8	8.3	8.3
89769	78.5S	168.4E	50	S	392	392	100	0			
89805	74.1S	109.8E	3096	S	134	28	21	0	3.7	4.3	5.7
89847	67.6S	146.0E	30	S	317	10	3	0	1.8	-10.1	10.3

TABLE 4A

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: OCTOBER 2000

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAH	892	1	36	1.3	0.5	878	0	36	0	6.3	1.0
AAL	6019	1	18	1.4	0.2	6014	0	19	0	7.9	0.8
AAR	1820	1	7	1.6	-0.5	1805	0	6	0	7.7	0.7
ABD	21	0	5	1.1	0.4	21	0	5	0	5.4	0.4
ACA	1514	1	3	1.6	0.0	1510	0	3	0	7.4	0.7
ACI	70	3	47	1.0	0.2	70	0	46	0	7.6	0.4
AEA	902	1	3	1.8	0.7	885	0	4	0	8.9	0.5
AEL	482	6	17	2.8	0.5	479	0	10	0	8.3	0.1
AEY	63	0	3	1.7	0.9	62	0	3	0	5.9	0.8
AFL	604	0	2	1.7	0.2	601	0	3	0	7.6	0.2
AFR	1925	0	7	1.4	-0.1	1951	0	8	0	8.0	0.8
AIH	291	1	5	1.6	-0.1	292	0	4	0	7.3	1.7
AJM	232	0	3	1.3	0.2	233	0	5	0	8.4	1.3
AMM	160	0	5	1.7	0.7	158	0	7	0	8.0	0.8
AMT	784	4	43	2.5	1.7	778	0	40	0	7.8	1.1
AMX	275	1	4	1.6	0.5	273	1	5	0	10.8	1.3
ANA	968	1	14	1.6	0.8	964	0	14	0	7.3	1.0
ANZ	6572	0	36	1.4	0.1	6540	0	36	0	7.1	0.7
AOM	887	1	7	1.4	0.8	884	1	7	0	7.3	1.1
ARG	105	5	23	2.9	1.1	106	1	100	0	9.5	2.9
AUA	29	0	0	1.2	0.2	29	0	0	0	5.1	-0.4
AVA	668	1	4	1.5	0.6	671	0	4	0	8.5	0.9
AVN	145	0	50	1.0	0.0	145	0	50	0	5.9	-0.1
AXF	119	2	33	1.2	0.1	118	0	31	0	7.0	2.1
AZA	907	7	23	3.7	1.8	919	0	7	0	8.5	0.9
BAL	382	2	10	1.3	0.0	379	0	9	0	7.4	1.0
BAW	1676	0	5	1.7	0.3	1685	0	6	0	6.9	0.9
BBB	46	0	2	1.2	0.2	44	0	2	0	6.2	-0.2
BLC	27	0	41	0.9	0.5	34	0	35	0	8.6	0.8
BLX	44	5	7	1.8	-1.2	44	0	14	0	15.4	-0.1
BWA	297	1	6	2.0	1.4	294	1	11	0	10.7	1.0
CAL	299	0	8	1.6	0.2	307	0	9	0	8.4	0.3
CCA	458	3	100	2.3	0.4	503	1	56	0	12.7	-0.5
CDN	2601	0	11	1.5	0.1	2558	0	11	0	7.8	0.5
CES	384	0	6	1.5	0.3	396	2	10	0	9.7	0.4
CFG	977	1	3	1.4	-0.6	963	0	3	0	7.1	0.6
CGB	22	0	0	1.1	0.6	23	0	0	0	5.5	-0.8
CLX	443	0	7	1.5	-0.4	450	0	8	0	7.7	0.7
CMI	263	4	7	2.0	0.6	260	0	6	0	10.5	1.5
CMM	514	0	10	1.4	-0.2	508	0	10	0	7.3	0.5
COA	1417	0	23	1.4	0.2	1432	0	25	0	8.9	1.7
CPA	82	1	6	2.0	1.2	87	0	5	0	6.7	-0.2
CRL	418	1	9	1.6	0.7	417	0	9	0	7.9	1.1
CSN	128	0	10	1.4	0.1	129	1	12	0	10.6	2.0
CTB	151	0	1	1.3	0.4	155	0	0	0	5.9	1.2
CUB	252	2	6	2.3	1.5	253	0	4	0	7.3	0.9
DAL	3525	0	33	1.4	0.3	3556	0	34	0	7.4	0.7
DBY	639	0	3	1.3	-0.2	646	1	4	0	7.2	0.4
DCS	48	0	4	1.5	-0.2	47	0	2	0	5.5	0.2
DLH	2023	1	6	1.6	-0.1	2017	0	6	0	7.6	0.8
EEZ	78	12	100	6.0	5.3	77	0	6	0	10.7	-0.4
EIA	379	0	36	1.4	0.1	365	0	39	0	9.9	2.1
EIN	29	3	10	2.3	-0.1	32	0	9	0	12.9	-0.4
ELY	139	1	7	2.0	-0.1	140	1	5	0	6.7	1.4
EVA	804	1	5	1.5	-0.3	824	0	6	0	7.7	0.6
EWW	102	2	8	1.8	0.5	102	0	8	0	11.2	0.8
FDX	2121	1	20	1.4	0.6	2109	0	21	0	8.0	1.0
FIN	285	0	3	1.5	0.3	276	0	5	0	7.9	0.2
FJI	874	1	46	1.4	0.0	832	0	46	0	7.3	0.5

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
FOM	628	0	30	1.5	0.0	629	0	31	0	7.9	1.2
FWQ	148	0	57	1.0	0.3	145	0	58	0	7.4	0.2
GAF	29	0	7	2.4	-1.0	29	0	7	0	7.7	0.0
GCO	231	1	11	1.6	0.3	236	0	100	0	13.3	2.7
GHA	109	4	4	1.2	-0.1	107	0	2	0	9.4	2.1
GRL	41	0	0	1.1	-0.1	40	0	0	0	3.7	0.3
GTI	386	0	6	1.7	-0.2	406	0	6	0	7.7	0.9
HAL	4152	0	35	1.4	0.4	4064	0	35	0	8.9	1.6
HLF	113	4	8	2.0	-0.3	115	1	3	0	6.3	0.5
HRH	258	0	63	1.7	0.2	258	0	64	0	7.4	1.7
IBE	3109	1	8	1.7	0.7	3087	0	9	0	8.4	1.1
ICE	1360	1	6	1.7	0.3	1253	0	3	0	7.3	0.4
IWD	296	0	3	1.2	-0.3	297	0	2	0	7.0	1.4
JAA	76	4	7	1.4	1.0	76	0	3	0	6.7	1.8
JAL	6516	0	5	1.6	0.2	6514	0	5	0	7.7	0.8
JAZ	1048	0	3	1.9	1.3	1026	0	4	0	8.0	1.2
JKK	311	0	5	1.4	0.3	287	0	8	0	9.0	1.2
JMC	292	0	9	1.9	1.2	275	0	10	0	8.2	0.9
KAL	3597	1	9	1.6	-0.1	3573	0	10	0	8.7	0.6
KLM	2362	0	8	1.5	0.3	2372	0	9	0	7.3	1.0
LAN	90	1	7	1.6	0.5	95	0	52	0	9.3	1.4
LAP	67	6	25	2.3	1.2	67	0	19	0	8.3	2.7
LDA	130	0	3	1.9	0.4	131	0	2	0	6.8	1.6
LDI	487	10	100	4.1	1.7	486	0	4	0	8.6	0.5
LIB	375	1	3	1.6	1.2	372	0	6	0	9.3	1.6
LOB	30	7	37	3.8	-2.8	33	0	33	0	10.6	-0.9
LOT	57	0	2	1.7	-0.5	55	0	2	0	10.0	-0.9
LPR	23	0	9	3.5	0.9	23	0	0	0	8.5	3.2
LTU	636	0	4	1.4	0.1	628	0	4	0	6.6	0.4
MAS	679	0	4	1.5	0.3	674	1	10	0	11.0	0.6
MEJ	21	0	43	2.3	-2.1	21	0	48	0	15.1	7.4
MMZ	25	0	0	2.1	1.6	25	0	0	0	6.3	2.1
MON	91	0	3	1.1	0.1	90	1	6	0	7.5	1.8
MPD	432	1	6	1.7	0.2	430	0	6	0	8.1	0.3
MPH	859	0	3	1.6	-0.5	860	0	3	0	7.7	0.8
NCA	718	0	3	1.9	0.2	714	0	4	0	8.0	0.5
NVR	25	4	8	0.7	0.0	25	0	4	0	8.0	-0.7
NWA	10860	0	10	1.6	0.5	10817	0	10	0	7.6	0.5
OAE	67	0	34	1.3	-0.1	65	0	37	0	10.5	1.9
PAC	328	0	24	2.0	0.5	345	0	23	0	8.4	0.6
PAL	1358	0	5	1.4	0.2	1324	0	7	0	8.5	0.5
PAO	459	1	58	1.5	0.2	456	1	58	0	9.0	0.5
PUA	22	0	41	1.9	1.0	24	8	46	0	16.6	4.2
QFA	4840	0	60	1.4	0.3	4819	0	60	0	6.6	0.8
RAM	125	1	6	1.5	-0.2	121	0	7	0	7.9	0.8
RCH	326	1	16	2.3	1.0	306	0	17	0	10.1	1.9
RJA	28	4	4	1.1	-0.3	28	0	0	0	7.5	2.4
RKA	130	1	7	1.6	-0.1	128	0	8	0	11.1	1.1
RON	22	14	32	0.6	0.2	21	0	24	0	10.2	-3.0
ROY	68	1	3	1.5	-0.4	66	0	3	0	8.2	0.3
RRR	94	2	5	1.6	0.4	93	1	5	0	6.5	0.2
RYN	289	1	41	1.7	1.2	287	1	40	0	5.4	0.9
RZO	233	1	7	1.5	-0.4	231	1	8	0	9.1	-0.1
SAA	428	2	5	1.4	-0.3	421	0	5	0	8.0	1.3
SAS	817	0	30	1.5	-0.4	819	0	31	0	6.9	0.5
SIA	617	0	3	1.4	0.0	621	0	4	0	7.4	0.3
SLR	237	0	8	1.4	-0.4	235	0	9	0	7.1	0.0
SOL	25	0	0	0.9	0.3	26	4	4	0	5.9	0.0
SOO	178	0	100	0.9	0.0	182	0	39	0	6.5	1.3

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
SVA	64	0	0	1.7	-0.6	70	0	1	0	5.9	1.0
SWR	77	0	9	1.5	0.3	79	0	10	0	9.1	2.7
TAP	582	1	10	1.5	0.0	583	0	10	0	8.5	1.1
TBA	42	2	57	3.2	1.9	45	0	49	0	13.9	1.0
TCU	24	0	8	3.0	0.9	24	0	0	0	7.5	1.9
THA	314	0	7	1.8	-0.1	318	0	7	0	8.1	1.3
THT	95	3	35	2.6	-0.6	91	0	30	0	7.1	0.1
TLX	29	0	7	1.7	0.9	28	0	7	0	8.4	-1.1
TSC	174	0	7	1.5	0.2	173	0	13	0	10.6	1.6
TWA	1895	0	22	1.7	0.4	1863	0	21	0	7.7	1.3
UAL	115972	0	100	1.1	-0.2	115840	0	100	0	5.1	0.6
UPS	1806	0	23	1.8	0.3	1814	0	22	0	7.0	0.9
USA	183	0	2	1.6	0.3	155	1	5	0	9.2	1.4
VIR	1147	0	4	1.9	0.2	1150	0	2	0	6.8	0.8
VKG	62	0	3	1.8	-0.8	63	2	5	0	6.8	1.9
VPB	42	0	29	1.5	-1.0	39	0	31	0	11.7	0.6
VRG	295	1	27	2.0	1.1	335	0	100	0	11.9	3.5
VVR	74	3	39	2.1	0.8	75	0	37	0	6.4	1.2
WOA	231	0	8	1.7	0.5	293	1	13	0	10.0	1.7
YSS	65	0	12	1.4	1.0	65	0	12	0	8.3	0.9
AN	26384	0	19	1.1	0.3	26384	0	19	0	5.1	0.6
AR	3110	8	100	3.0	2.7	3080	0	9	0	8.8	2.4
EU	82592	0	26	1.1	0.2	82592	0	26	0	5.1	0.6
KL	7964	0	12	1.3	0.7	7926	0	12	0	5.3	1.0
LH	1691	0	7	1.6	1.0	1677	0	7	0	4.9	1.1
LN	26	0	42	3.9	3.4	26	0	42	0	9.4	3.2
MK	4024	0	6	1.5	1.2	3987	0	40	0	6.2	1.2
NZ	3415	0	11	1.3	-0.1	3415	0	11	0	5.3	0.7
QF	32276	0	14	1.3	0.6	32279	0	13	0	5.3	0.6
SA	3302	0	12	1.5	0.9	3298	0	12	0	6.2	0.6
SV	1661	0	100	2.8	2.7	1648	0	2	0	4.8	0.5
WA	349	8	13	1.7	0.6	343	7	20	0	10.1	-1.5
XX	5733	2	8	1.5	0.2	6301	0	9	0	9.7	1.2
N	714	1	15	2.3	0.8	753	0	15	0	8.6	0.7
US ACARS	560870	0	48	1.2	0.3	560664	0	48	0	5.4	0.8

TABLE 4B

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: OCTOBER 2000

Monitoring procedures

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:All hours combined.
Level(s) monitored		:1000.0 – 300.1 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored		
	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS		:10.0 °C ; 60 m s^{-1} Vector Wind
SELECTION CRITERIA		:N REP ≥ 20

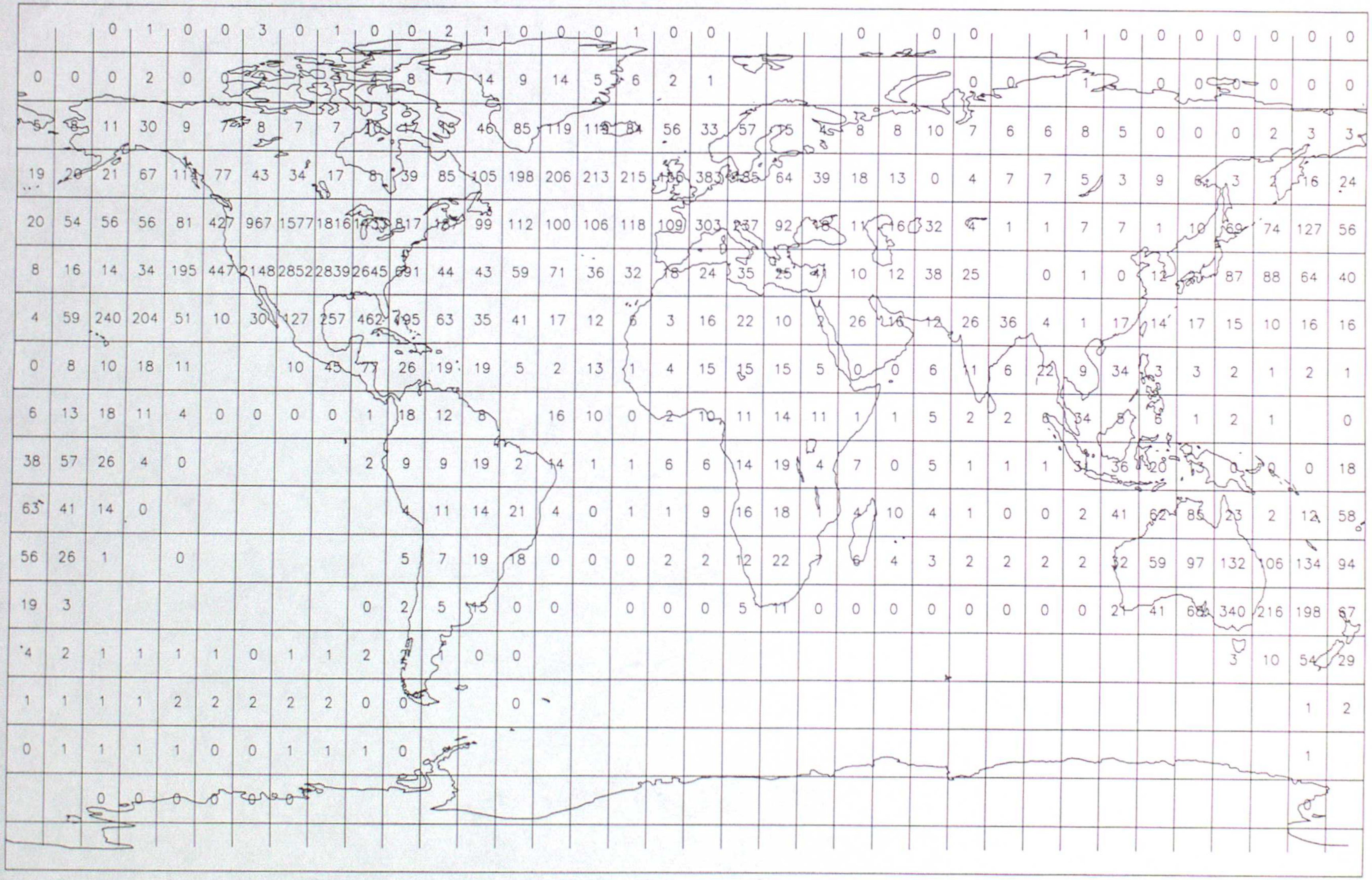
NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	334	2	16	1.3	-0.1	340	0	15	0	8.0	0.8
AAR	62	0	39	1.8	-0.3	61	0	41	0	6.3	1.1
AFL	51	2	6	1.3	0.6	50	0	4	0	7.6	-0.2
AFR	62	2	8	1.3	0.1	63	0	6	0	6.1	0.6
ANC	28	0	64	1.6	-0.2	28	0	64	0	6.9	-1.1
AND	32	0	47	1.3	0.9	32	0	47	0	3.8	1.6
ANO	27	0	63	1.2	-0.4	27	0	63	0	3.9	0.2
ANZ	238	2	42	1.2	0.3	238	0	42	0	7.0	0.8
AOM	91	0	1	1.8	1.5	92	0	3	0	7.6	0.0
ARG	34	9	21	2.6	0.3	34	0	100	0	8.4	1.4
ATN	20	5	15	2.2	0.0	21	0	10	0	12.0	0.2
BAF	23	4	4	1.6	-0.1	24	0	13	0	14.5	0.6
CDN	36	3	33	2.4	-0.7	34	0	24	0	8.3	2.1
CFC	95	1	8	1.5	0.9	96	0	13	0	8.3	2.1
CFG	25	0	8	1.3	-0.7	25	0	8	0	8.5	0.2
CLX	45	0	4	2.2	-0.2	46	0	11	0	12.7	0.6
CMI	45	0	7	2.4	-0.6	45	0	2	0	10.9	4.8
COA	153	0	24	1.7	0.5	148	0	28	0	10.4	1.0
CUB	26	4	12	1.9	1.3	26	0	8	0	7.5	0.3
DAF	26	0	4	2.0	-0.2	26	0	0	0	6.9	1.7
DAL	248	0	35	1.6	0.1	249	0	35	0	5.4	0.2
DHL	90	7	70	6.8	-6.7	90	0	17	0	13.3	0.9
DLH	271	0	8	1.5	0.1	269	1	9	0	8.6	-0.5
EIA	34	0	35	1.5	0.1	34	0	35	0	8.5	1.8
EVA	74	3	34	1.9	-1.2	73	0	36	0	8.5	1.3
EWW	100	1	3	1.7	0.9	103	1	10	0	11.5	1.2
FDX	442	1	10	1.6	0.8	442	0	11	0	8.4	-0.2
FIN	39	0	0	1.1	0.5	38	0	3	0	8.0	0.6
FWQ	55	0	58	1.3	0.5	55	0	58	0	6.8	2.1
GAF	45	0	0	1.0	0.2	45	0	0	0	6.1	1.3
GCO	209	0	3	1.3	0.1	209	0	100	0	15.1	3.7
GHA	43	7	12	1.7	-0.7	42	0	7	0	9.7	1.8
GTI	29	0	24	2.6	0.5	29	0	21	0	6.9	-0.9
HAL	112	0	41	1.3	0.4	112	0	42	0	8.4	0.6
IBE	95	9	20	1.2	0.1	96	0	15	0	8.9	0.9
ICE	193	1	6	1.6	-0.5	189	0	5	0	8.1	0.9
JAL	116	1	9	1.3	0.2	117	0	9	0	8.1	1.9
JAZ	128	0	2	2.1	1.1	129	0	2	0	7.8	-0.4
JMC	39	0	10	2.7	0.4	36	0	6	0	5.9	0.9
KAL	95	2	24	1.5	-0.5	95	0	25	0	8.5	0.3
KIW	44	0	30	2.7	2.1	44	0	34	0	7.9	1.1
KLM	56	2	9	1.5	0.4	55	0	7	0	7.2	0.8
LAN	79	4	11	3.2	0.2	92	0	61	0	10.0	3.6
MAS	56	0	20	1.2	-0.2	57	0	23	0	8.9	-0.4
MPH	48	0	0	1.3	-0.1	48	0	2	0	7.1	2.0
NAT	21	0	5	1.9	0.2	21	0	5	0	13.7	-1.4
NCA	122	0	1	1.9	0.0	121	0	2	0	8.1	0.3
NWA	418	1	14	1.5	0.4	419	0	14	0	7.5	0.1
PAC	48	2	6	1.7	0.3	49	0	4	0	6.4	-0.6
PAL	46	0	4	1.1	-0.6	45	0	4	0	5.9	0.5
QFA	197	11	61	1.9	0.4	197	0	60	0	11.7	2.0
RCH	183	0	11	2.0	-0.1	179	1	13	0	11.3	1.6
RRR	231	0	13	3.4	2.2	238	0	12	0	10.4	0.7
SAA	68	3	7	1.8	-0.6	69	0	1	0	5.9	0.1
SAS	51	0	37	1.3	-0.3	51	0	37	0	6.0	0.1
SIA	48	0	2	1.3	0.0	48	0	2	0	4.8	-0.4
SKI	54	0	19	2.5	0.1	38	0	18	0	8.3	-1.2
SWR	55	2	9	1.4	0.1	54	0	15	0	15.6	4.1
UAL	178770	0	100	1.2	0.0	178374	0	100	0	4.3	0.4

	TEMPERATURE				WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
UPS	104	1	14	1.8	0.0	101	1	16	0	9.5	-1.7
VDA	41	2	15	1.9	0.2	40	0	15	0	10.7	1.3
VHJ	111	1	1	1.8	-0.1	110	0	2	0	8.4	0.2
VVP	58	0	64	4.8	-3.2	58	0	59	0	14.4	4.1
AN	86376	0	69	1.4	0.0	86373	0	69	0	4.4	0.4
AR	3314	3	100	2.2	1.5	3294	0	53	0	5.2	1.1
EU	554836	0	78	1.1	0.2	554196	0	78	0	4.1	0.1
KL	6008	0	57	1.2	0.4	5968	0	57	0	4.3	0.3
LH	680	0	64	1.1	0.5	679	0	64	0	4.2	0.3
MK	3297	0	53	1.5	0.6	3261	0	68	0	5.2	1.0
NZ	8898	0	54	1.5	0.2	8898	0	55	0	5.7	0.9
QF	22883	0	58	1.3	0.4	23095	0	58	0	4.5	0.3
SA	3185	0	58	1.7	0.2	3173	0	58	0	5.8	0.7
SV	2619	0	100	3.2	2.9	2586	0	50	0	4.3	1.1
WA	46	13	24	2.0	0.6	44	5	39	0	18.3	-4.2
XX	988	5	11	1.8	0.2	1030	0	13	0	11.7	1.9
US ACARS	538412	0	53	1.3	0.3	535920	0	55	0	4.6	0.3

MEAN DAILY COUNT OF AIRCRAFT 300 – 150 HPA
OCTOBER 2000
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 30875

FIGURE 3A



		0	1	0	0	3	0	1	0	0	2	1	0	0	0	1	0	0				0		0	0			1	0	0	0	0	0	0	0
0	0	0	2	0	0			3	4	8	7	14	9	14	5	6	2	1							0	0		1		0	0	0	0	0	0
5	8	11	30	9	7	8	7	7	10	17	15	46	85	119	119	84	56	33	57	15	4	8	8	10	7	6	6	8	5	0	0	0	2	3	3
19	20	21	67	11	77	43	34	17	8	39	85	105	198	206	213	215	136	383	385	64	39	18	13	0	4	7	7	5	3	9	6	3	2	16	24
20	54	56	56	81	427	967	1577	1816	1433	817	187	99	112	100	106	118	109	303	237	92	18	11	16	32	4	1	1	7	7	1	10	69	74	127	56
8	16	14	34	195	447	2148	2852	2839	2645	691	44	43	59	71	36	32	18	24	35	25	41	10	12	38	25		0	1	0	12		87	88	64	40
4	59	240	204	51	10	30	127	257	462	195	63	35	41	17	12	6	3	16	22	10	2	26	16	12	26	36	4	1	17	14	17	15	10	16	16
0	8	10	18	11			10	45	77	26	19	19	5	2	13	1	4	15	15	15	5	0	0	6	11	6	22	9	34	3	3	2	1	2	1
6	13	18	11	4	0	0	0	0	1	18	12	8		16	10	0	2	10	11	14	11	1	1	5	2	2	6	34	8	6	1	2	1		0
38	57	26	4	0					2	9	9	19	2	14	1	1	6	6	14	19	4	7	0	5	1	1	1	31	36	20	13	0	0	0	18
63	41	14	0							4	11	14	21	4	0	1	1	9	16	18	1	4	10	4	1	0	0	2	41	62	85	23	2	12	58
56	26	1		0						5	7	19	18	0	0	0	2	2	12	22	7	6	4	3	2	2	2	2	32	59	97	132	106	134	94
19	3								0	2	5	15	0	0		0	0	0	5	11	0	0	0	0	0	0	0	0	21	41	68	340	216	198	67
4	2	1	1	1	1	0	1	1	2	2	1	0	0																			3	10	54	29
1	1	1	1	2	2	2	2	2	0	0			0																					1	2
0	1	1	1	1	0	0	1	1	1	0																								1	
		0	0	0	0	0	0																												

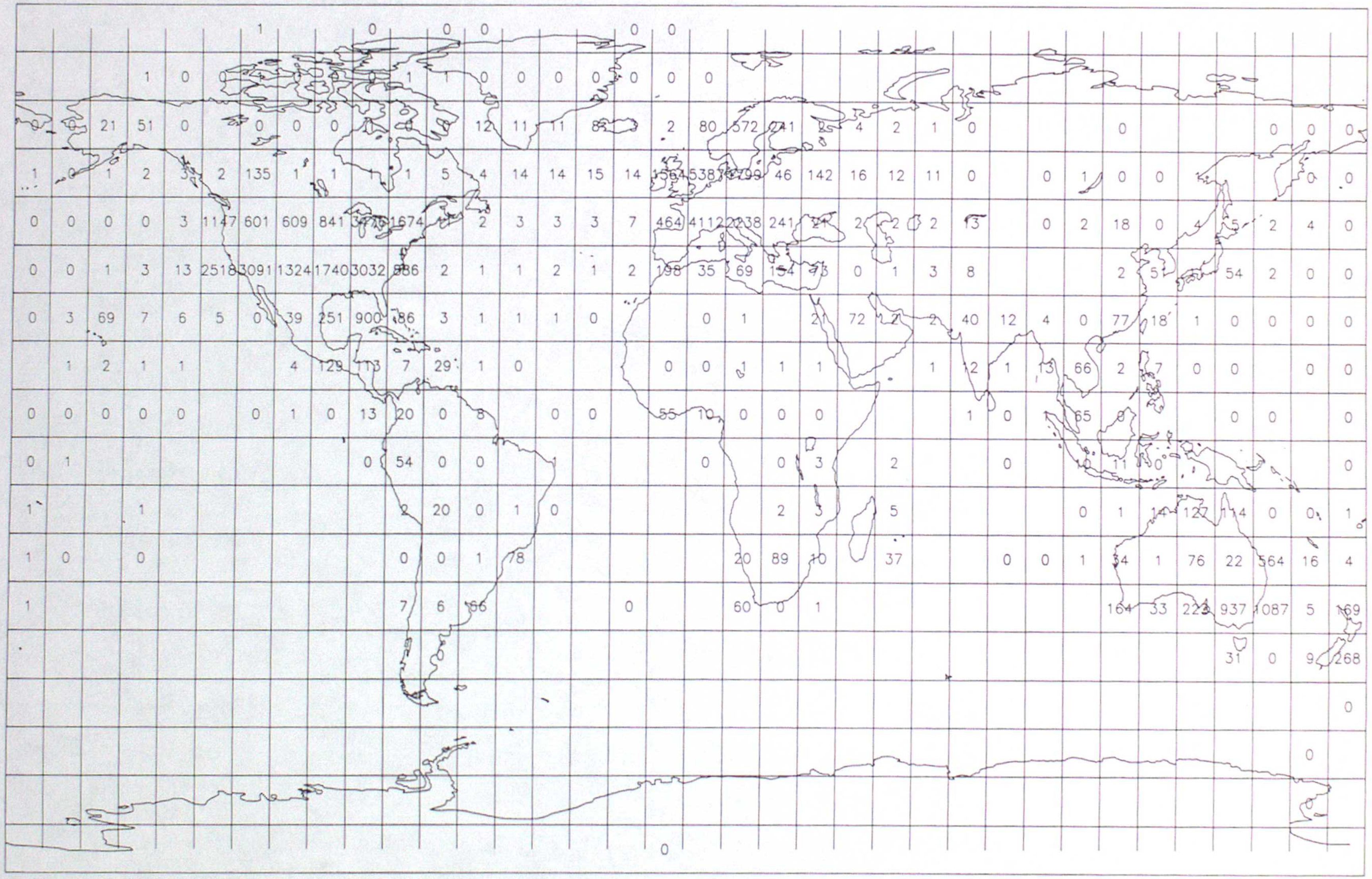
MEAN DAILY COUNT OF AIRCRAFT 1000 – 301 HPA

FIGURE 3B

OCTOBER 2000

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 45592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0 0 0 0 3 1147 601 609 841 3476 1674 41 2 3 3 3 7 464 4112 2238 241 21 2 2 2 13 0 2 18 0 4 5 2 4 0
0 0 1 3 13 2518 3091 1324 1740 3032 886 2 1 1 2 1 2 198 35 69 154 73 0 1 3 8 2 51 1 54 2 0 0
0 3 69 7 6 5 0 39 251 900 186 3 1 1 1 0 0 1 21 72 2 2 40 12 4 0 77 18 1 0 0 0 0
1 2 1 1 4 129 113 7 29 1 0 0 0 1 1 1 1 12 1 13 66 2 7 0 0 0 0
0 0 0 0 0 0 1 0 13 20 0 8 0 0 55 10 0 0 0 1 0 1 65 0 0 0 0
0 1 0 54 0 0 1 0 0 3 2 0 10 11 0 0
1 1 2 20 0 1 0 2 3 5 0 1 14 127 114 0 0 1
1 0 0 0 0 1 78 20 89 10 37 0 0 1 34 1 76 22 564 16 4
1 7 6 66 0 60 0 1 164 33 223 937 1087 5 169
31 0 9 268
0
0
0

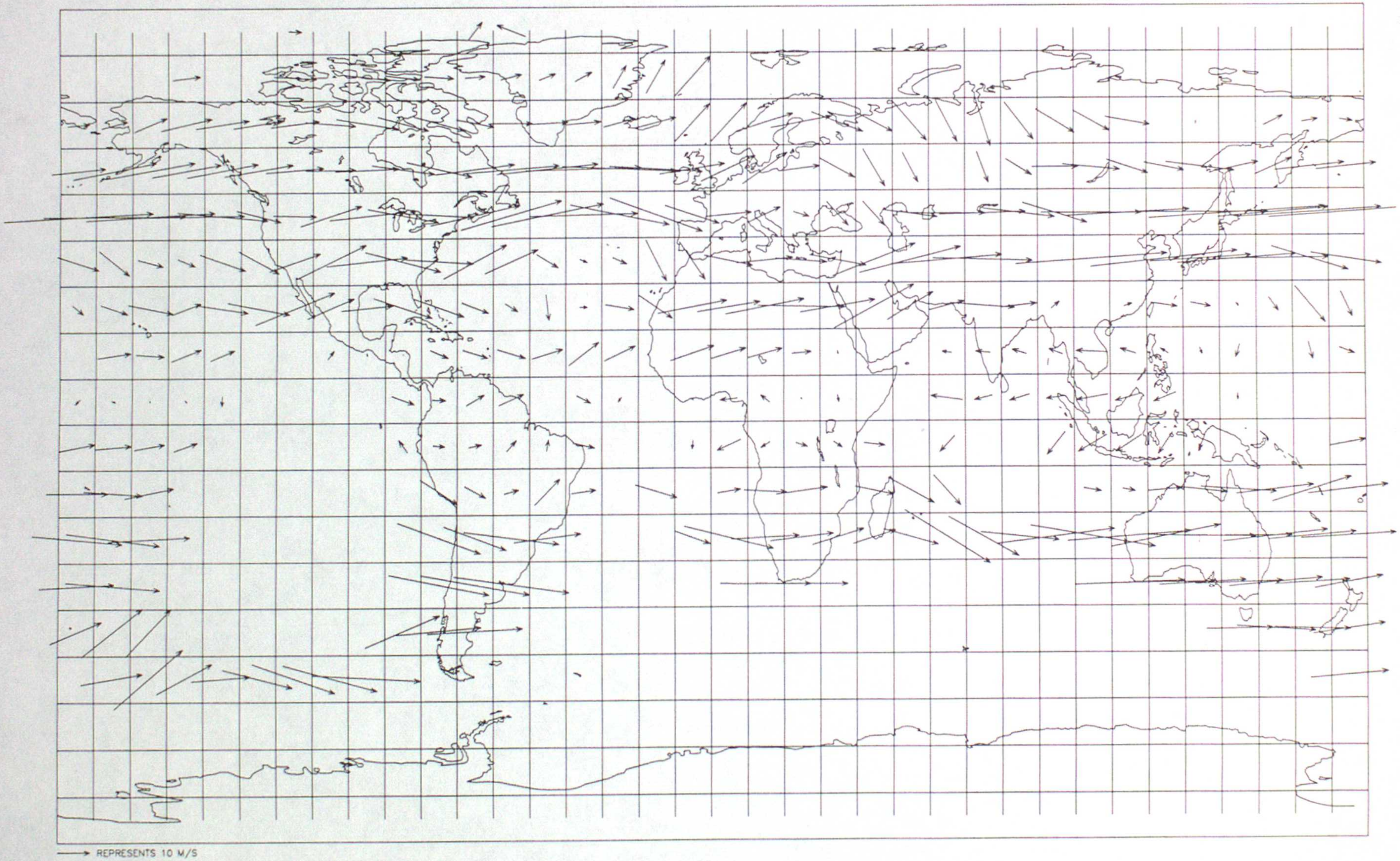
AIRCRAFT MEAN WINDS BETWEEN 300 AND 150 HPA

FIGURE 4A

OCTOBER 2000

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



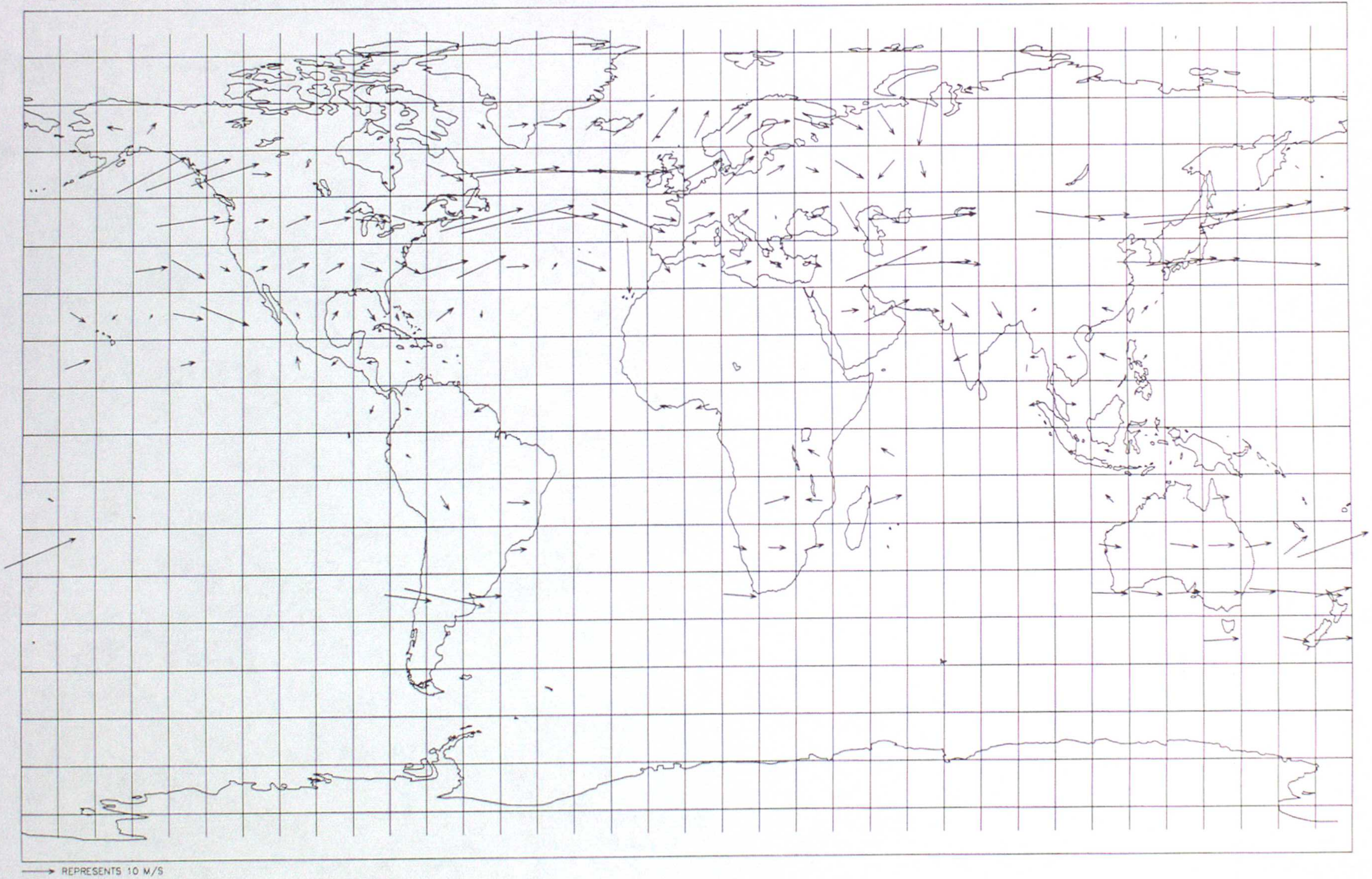
AIRCRAFT MEAN WINDS BETWEEN 1000 AND 301 HPA

FIGURE 4B

OCTOBER 2000

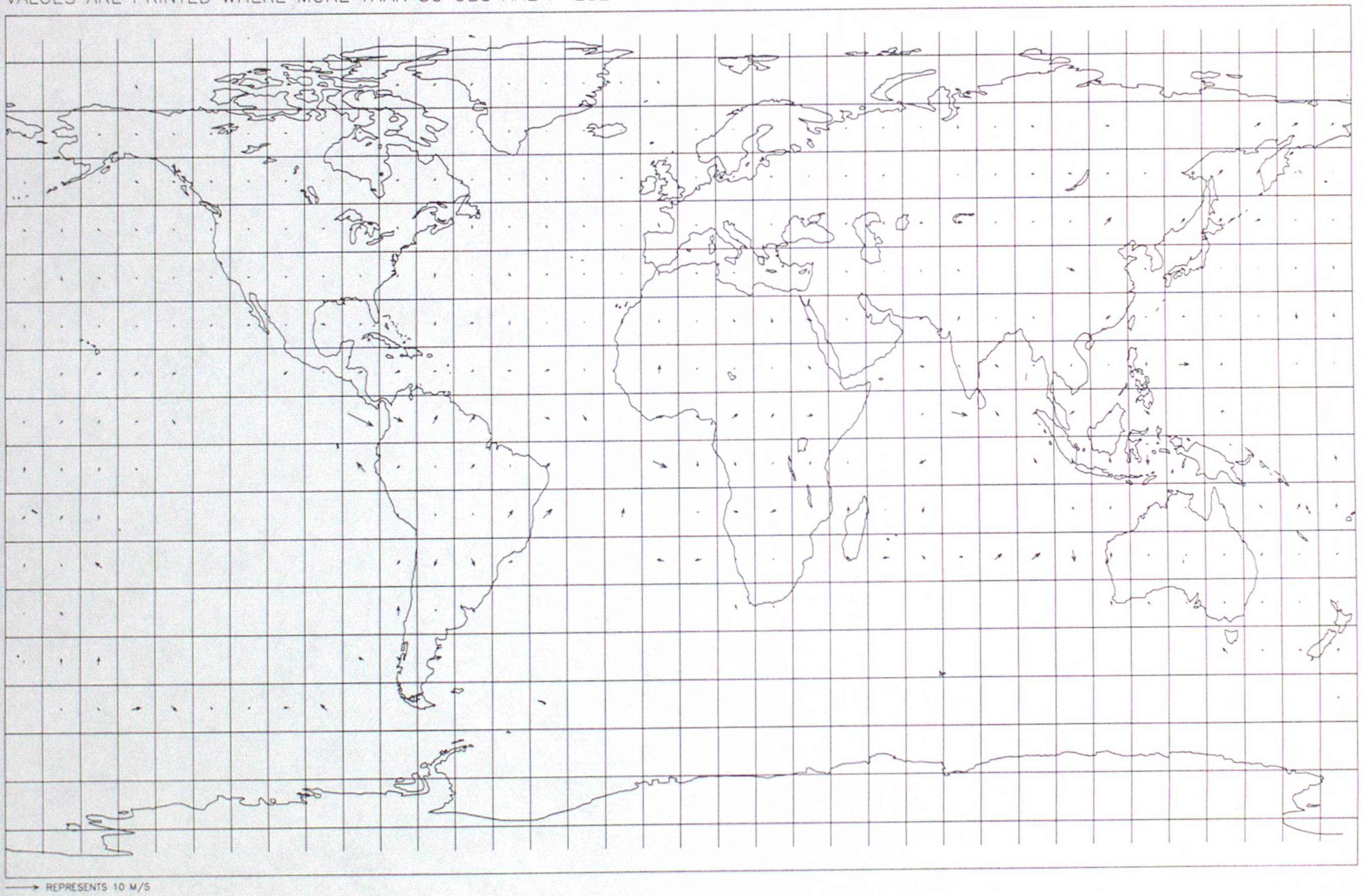
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT MEAN O-B WINDS BETWEEN 300 AND 150 HPA
OCTOBER 2000
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 5A



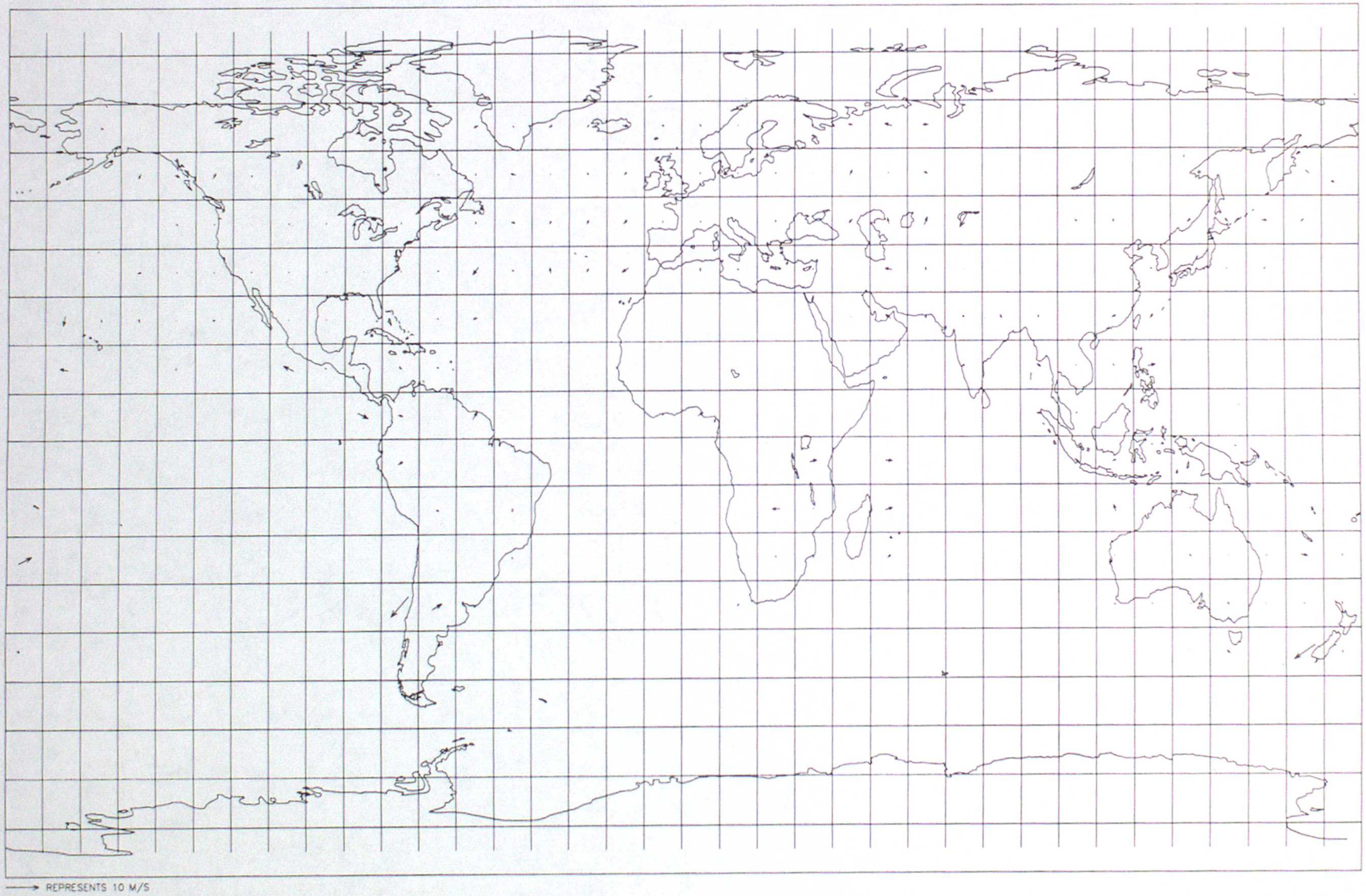
AIRCRAFT MEAN O-B WINDS BETWEEN 1000 AND 301 HPA

FIGURE 5B

OCTOBER 2000

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



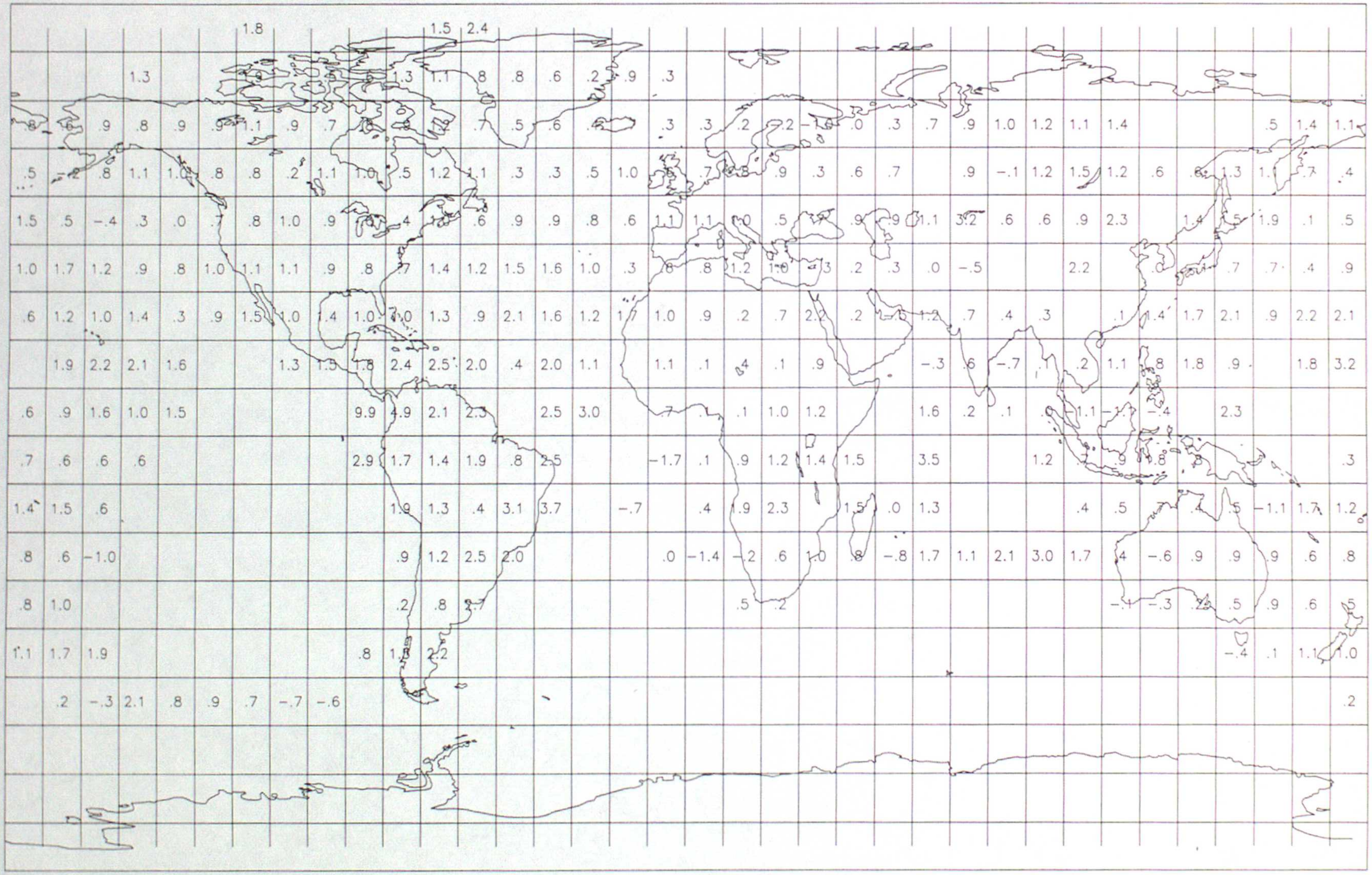
AIRCRAFT : MEAN O–B SPEEDS (M/S) 300 – 150 HPA

FIGURE 6A

OCTOBER 2000

OBSERVATIONS WITH O–B VECTOR DIFFERENCE > 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


1.8 1.5 2.4
1.3 1.3 1.1 .8 .8 .6 .2 .9 .3
.8 .6 .9 .8 .9 .9 1.1 .9 .7 .6 .9 .7 .5 .6 .4 .3 .3 .2 .2 −1.0 .0 .3 .7 .9 1.0 1.2 1.1 1.4 .5 1.4 1.1
.5 −.2 .8 1.1 1.0 .8 .8 .2 1.1 1.0 .5 1.2 1.1 .3 .3 .5 1.0 .5 .7 .8 .9 .3 .6 .7 .9 −.1 1.2 1.5 1.2 .6 .6 1.3 1.1 .7 .4
1.5 .5 −.4 .3 .0 .7 .8 1.0 .9 .6 .4 .6 .9 .9 .8 .6 1.1 1.1 1.0 .5 .7 .9 .9 1.1 3.2 .6 .6 .9 2.3 1.4 .5 1.9 .1 .5
1.0 1.7 1.2 .9 .8 1.0 1.1 1.1 .9 .8 .7 1.4 1.2 1.5 1.6 1.0 .3 .8 .8 1.2 1.0 .3 .2 .3 .0 −.5 2.2 .0 .7 .7 .4 .9
.6 1.2 1.0 1.4 .3 .9 1.5 1.0 .4 1.0 1.0 1.3 .9 2.1 1.6 1.2 1.7 1.0 .9 .2 .7 2.2 .2 .5 1.2 .7 .4 .3 .1 1.4 1.7 2.1 .9 2.2 2.1
1.9 2.2 2.1 1.6 1.3 1.5 1.8 2.4 2.5 2.0 .4 2.0 1.1 1.1 .1 .4 .1 .9 −.3 .6 −.7 .1 .2 1.1 .8 1.8 .9 1.8 3.2
.6 .9 1.6 1.0 1.5 9.9 4.9 2.1 2.3 2.5 3.0 .7 .1 .1 1.0 1.2 1.6 .2 .1 .0 1.1 −1.1 −.4 2.3
.7 .6 .6 .6 2.9 1.7 1.4 1.9 .8 2.5 −1.7 .1 .9 1.2 1.4 1.5 3.5 1.2 .9 .8 .8 .3
1.4 1.5 .6 1.9 1.3 .4 3.1 3.7 −.7 .4 1.9 2.3 1.5 .0 1.3 .4 .5 .7 .4 .5 −1.1 1.7 1.2
.8 .6 −1.0 .9 1.2 2.5 2.0 .0 −1.4 −.2 .6 1.0 .8 −.8 1.7 1.1 2.1 3.0 1.7 .4 −.6 .9 .9 .9 .6 .8
.8 1.0 .2 .8 3.7 .5 .2 −.1 −.3 .2 .5 .9 .6 .5
1.1 1.7 1.9 .8 1.8 2.2 −.4 .1 1.1 1.0
.2 −.3 2.1 .8 .9 .7 −.7 −.6 .2

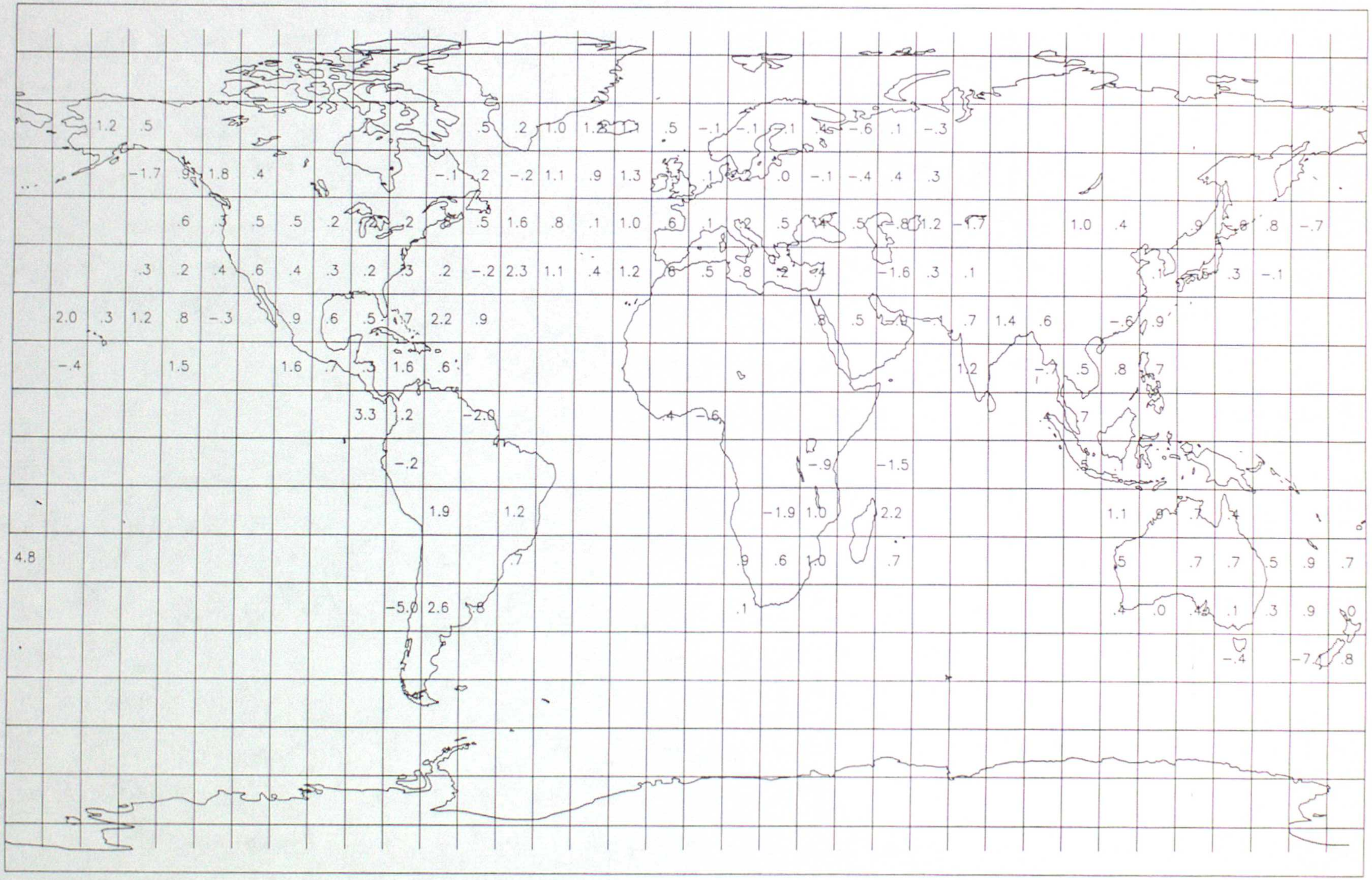
AIRCRAFT : MEAN O-B SPEEDS (M/S) 1000 - 301 HPA

FIGURE 6B

OCTOBER 2000

OBSERVATIONS WITH O-B VECTOR DIFFERENCE > 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


1.2 .5 .5 .2 1.0 1.2 1.1 .5 -.1 -.1 -.1 .4 -.6 .1 -.3
-1.7 .9 1.8 .4 -.1 .2 -.2 1.1 .9 1.3 .1 .2 .0 -.1 -.4 .4 .3
.6 .3 .5 .5 .2 .2 .2 .6 .5 1.6 .8 .1 1.0 .6 .1 .2 .5 .4 .5 -.8 1.2 -1.7 1.0 .4 .9 .6 .8 -.7
.3 .2 .4 .6 .4 .3 .2 .3 .2 -.2 2.3 1.1 .4 1.2 .6 .5 .8 .2 .4 -1.6 .3 .1 .1 .5 .3 -.1
2.0 .3 1.2 .8 -.3 .9 .6 .5 .7 2.2 .9 .8 .5 .0 -.1 .7 1.4 .6 -.6 .9
-.4 1.5 1.6 .7 .3 1.6 .6 1.2 -.7 .5 .8 .7
3.3 .2 -2.0 .4 -.6 .4 .7
-.2 -.9 -1.5 .5
1.9 1.2 -1.9 1.0 2.2 1.1 .9 .7 .4
4.8 .7 .9 .6 1.0 .7 .5 .7 .7 .5 .9 .7
-5.0 2.6 .8 .1 .4 .0 .4 .1 .3 .9 .0
-.4 -7.4 .8

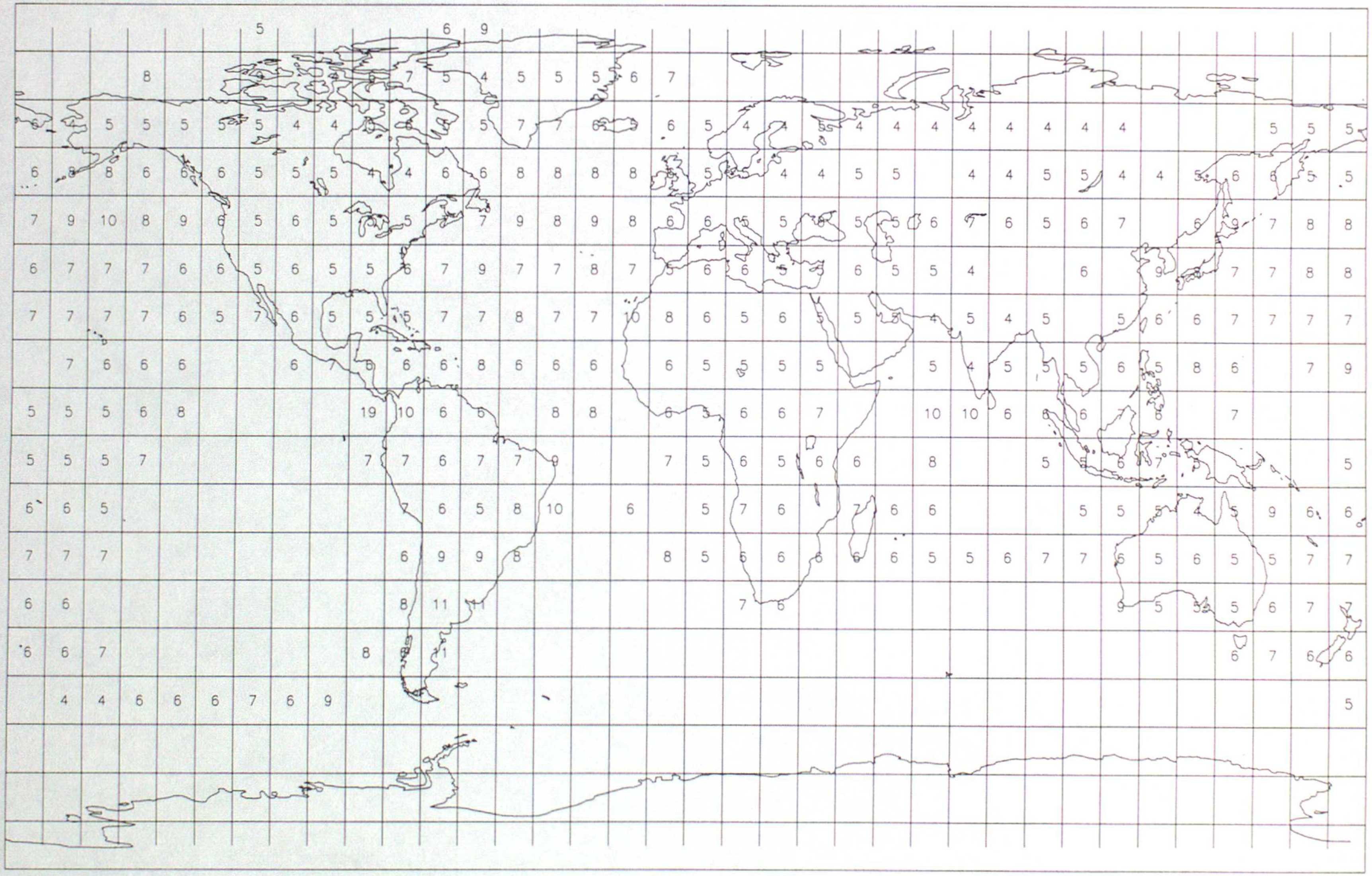
AIRCRAFT : RMS O–B VECTOR (M/S) 300 – 150 HPA

FIGURE 7A

OCTOBER 2000

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


5 6 9
8 7 5 4 5 5 5 6 7
6 4 5 5 5 5 5 4 4 5 6 5 5 7 7 6 5 6 5 4 4 5 4 4 4 4 4 4 4 4 5 5 5
6 8 8 6 6 6 5 5 5 4 4 6 6 8 8 8 8 6 5 4 4 5 5 4 4 5 5 4 4 5 6 6 5 5
7 9 10 8 9 6 5 6 5 5 5 7 7 9 8 9 8 6 6 5 5 6 5 5 6 7 6 5 6 7 6 9 7 8 8
6 7 7 7 6 6 5 6 5 5 6 7 9 7 7 8 7 5 6 6 5 5 6 5 5 4 6 9 7 7 8 8
7 7 7 7 6 5 7 6 5 5 5 7 7 8 7 7 10 8 6 5 6 5 5 5 4 5 4 5 5 6 6 7 7 7 7
7 6 6 6 6 7 6 6 6 8 6 6 6 6 5 5 5 5 5 4 5 5 5 6 5 8 6 7 9
5 5 5 6 8 19 10 6 6 8 8 6 5 6 6 7 10 10 6 6 6 7 6 7
5 5 5 7 7 7 6 7 7 9 7 5 6 5 6 6 8 5 5 6 7 5 5
6 6 5 7 6 5 8 10 6 5 7 6 7 6 6 5 5 5 4 5 9 6 6
7 7 7 6 9 9 8 8 5 6 6 6 6 6 5 5 6 7 7 6 5 6 5 5 7 7
6 6 8 11 11 7 6 9 5 5 5 6 7 7
6 6 7 8 8 11 6 7 6 6
4 4 6 6 6 7 6 9 5

AIRCRAFT : RMS O-B VECTOR (M/S) 1000 - 301 HPA

OCTOBER 2000

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

FIGURE 7B

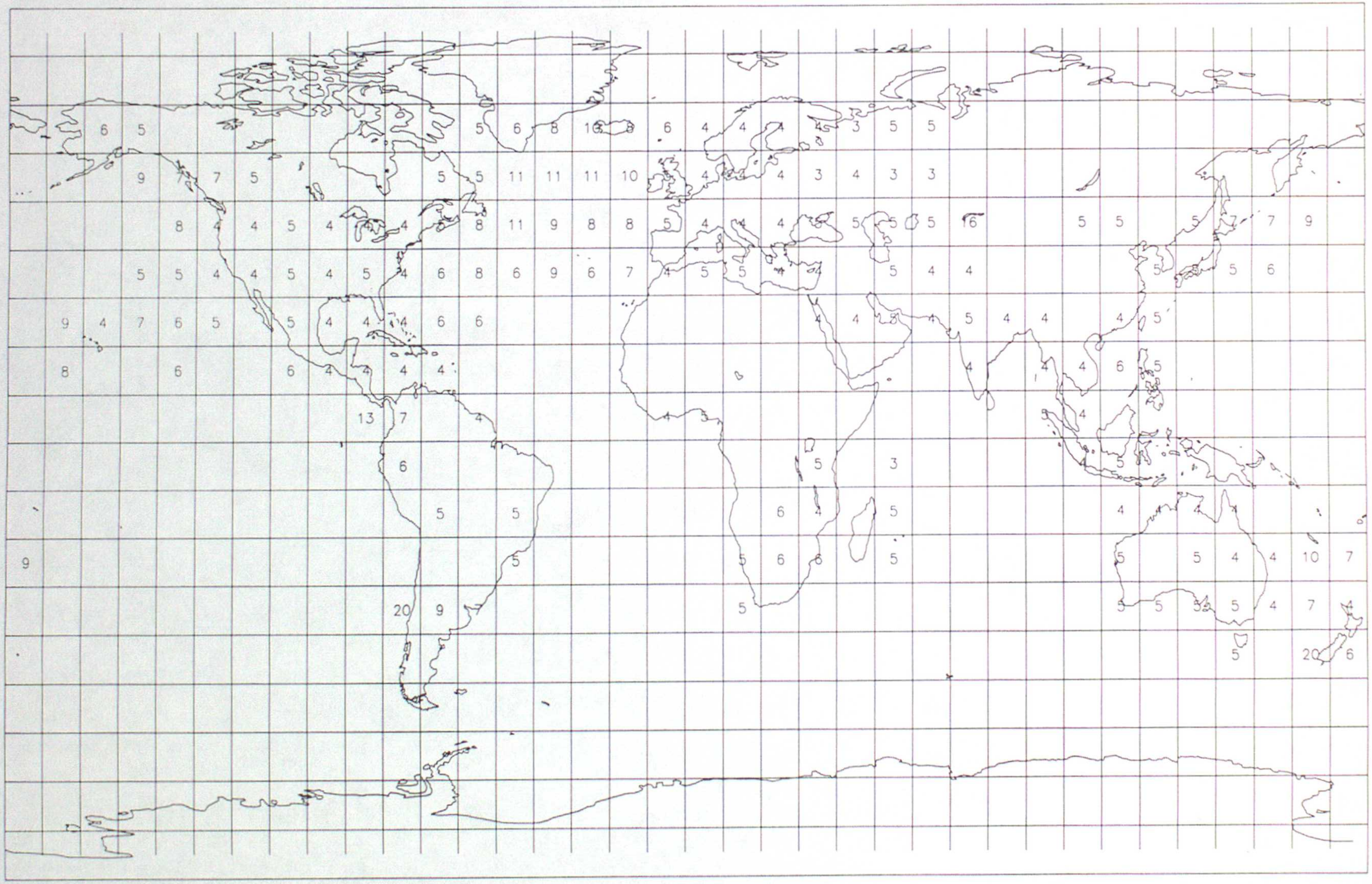

6 5 5 6 8 16 8 6 4 4 4 4 3 5 5
9 7 7 5 5 5 11 11 11 10 4 4 4 4 3 4 3 3
8 4 4 5 4 4 4 8 11 9 8 8 5 4 4 4 5 5 5 5 16 5 5 5 7 7 9
5 5 4 4 5 4 5 4 6 8 6 9 6 7 4 5 5 4 4 5 4 4 5 5 6
9 4 7 6 5 5 4 4 4 6 6 4 4 5 4 5 4 4 4 5
8 6 6 4 4 4 4 4 4 4 6 5
13 7 4 4 5 5 4
6 5 3 4 5
5 5 6 4 5 4 4 4 4
9 5 5 6 6 5 5 5 4 4 10 7
20 9 7 5 5 5 5 5 4 7 4
5 20 6

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: OCTOBER 2000

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 30.0 hPa
Element monitored		:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown duringperiod.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1	
SELECTION CRITERIA	: ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.	

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
26702	00	Z	200	55/ 21	20	2	52.5	82.1	97.5	4
36870	00	Z	850	43/ 77	13	0	13.6	-45.2	47.2	4
42027	00	Z	1000	34/ 75	12	2	23.0	45.3	50.8	7
42027	12	Z	1000	34/ 75	17	0	40.3	-43.2	59.1	7
42101	12	Z	100	30/ 76	23	0	59.0	134.3	146.6	5
42314	12	Z	200	27/ 95	22	0	71.1	-39.9	81.5	4
42339	00	Z	200	26/ 73	23	1	78.7	-33.2	85.4	4
42339	12	Z	100	26/ 73	13	2	117.2	63.4	133.2	5
42361	12	Z	400	26/ 78	16	0	67.9	-2.8	67.9	5
42369	12	Z	150	27/ 81	13	0	85.7	51.9	100.2	4
42397	00	Z	200	27/ 88	18	1	58.2	-64.0	86.5	7
42397	12	Z	100	27/ 88	9	1	129.1	0.7	129.1	6
42410	12	Z	150	26/ 92	19	0	102.8	-50.5	114.5	4
42492	12	Z	250	26/ 85	17	0	68.8	-43.9	81.6	4
42647	12	Z	100	23/ 73	13	4	52.4	207.9	214.4	7
42667	00	Z	100	23/ 77	14	0	113.8	37.1	119.7	5
42809	00	Z	150	23/ 88	24	0	89.2	62.8	109.1	4
42971	00	Z	100	20/ 86	24	0	71.6	146.3	162.9	4
43003	12	Z	250	19/ 73	19	2	68.4	133.9	150.4	6
43014	12	Z	100	20/ 75	12	2	94.2	73.8	119.7	6
43185	12	Z	150	16/ 81	21	0	113.5	29.3	117.2	6
43346	00	Z	100	11/ 80	26	0	69.8	-78.0	104.7	4
43353	12	Z	70	10/ 76	10	0	87.9	128.6	155.8	4
43369	12	Z	200	8/ 73	26	0	61.6	107.3	123.8	6
43371	12	Z	100	8/ 77	24	1	74.7	118.2	139.8	5
44277	12	Z	1000	46/ 96	5	8	45.2	-43.4	62.6	6
44292	00	Z	1000	48/ 107	28	0	20.4	44.4	48.9	5
44292	12	Z	100	48/ 107	19	0	21.0	124.6	126.3	5
53463	00	Z	200	41/ 112	27	2	78.8	-113.0	137.7	6
53463	12	Z	200	41/ 112	30	0	67.6	-122.4	139.8	6
72520	00	Z	200	40/ 80	24	4	130.2	55.0	141.3	10
72520	12	Z	1000	40/ 80	27	4	40.9	35.8	54.3	10
82193	12	Z	200	-1/ -48	2	0	41.0	106.0	113.7	8
84628	12	Z	850	-12/ -77	22	1	7.5	-77.5	77.9	8
89009	12	Z	850	-90/ 0	2	26	1.5	93.5	93.5	5
96163	00	Z	200	-1/ 100	14	0	56.9	-90.6	107.0	9
97180	00	Z	200	-5/ 120	15	1	86.0	-48.6	98.8	6

AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – OCTOBER 2000 FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1139

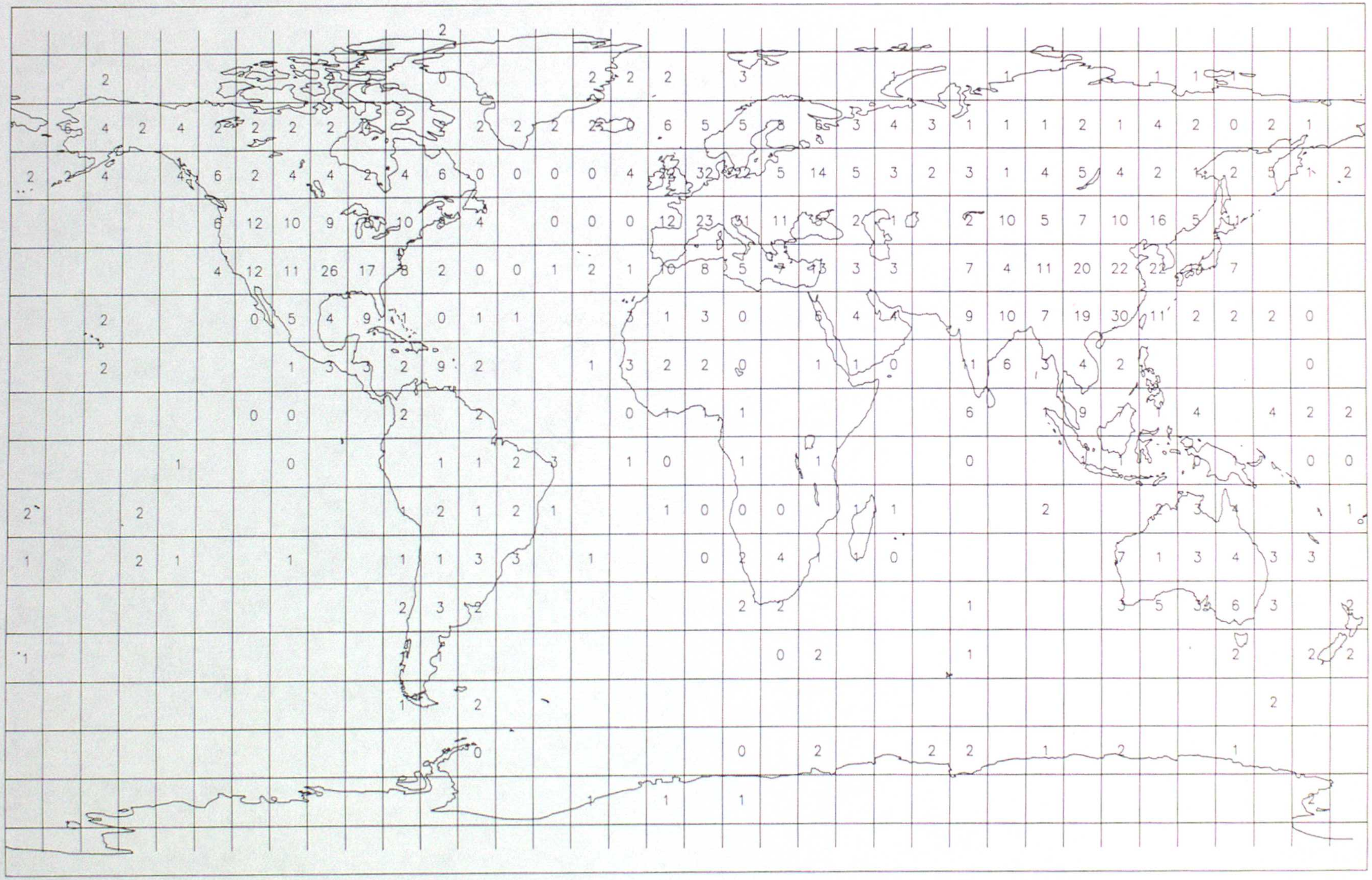


TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: OCTOBER 2000

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.

:UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA : ≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
PSPIU	00	V	100	-5/ -81	30	0	100	-13.0	-8.6	31.4	2
PSPIU	12	V	100	-5/ -81	31	0	100	-4.7	-6.9	28.5	3
40809	12	V	300	33/ 59	16	0	6	-11.0	-1.1	16.8	1
72520	00	V	150	40/ 80	28	0	100	-15.6	-0.8	21.2	1

AVAILABILITY – TEMP/PILOT – 300 HPA WIND – OCTOBER 2000

FIGURE 9

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1370

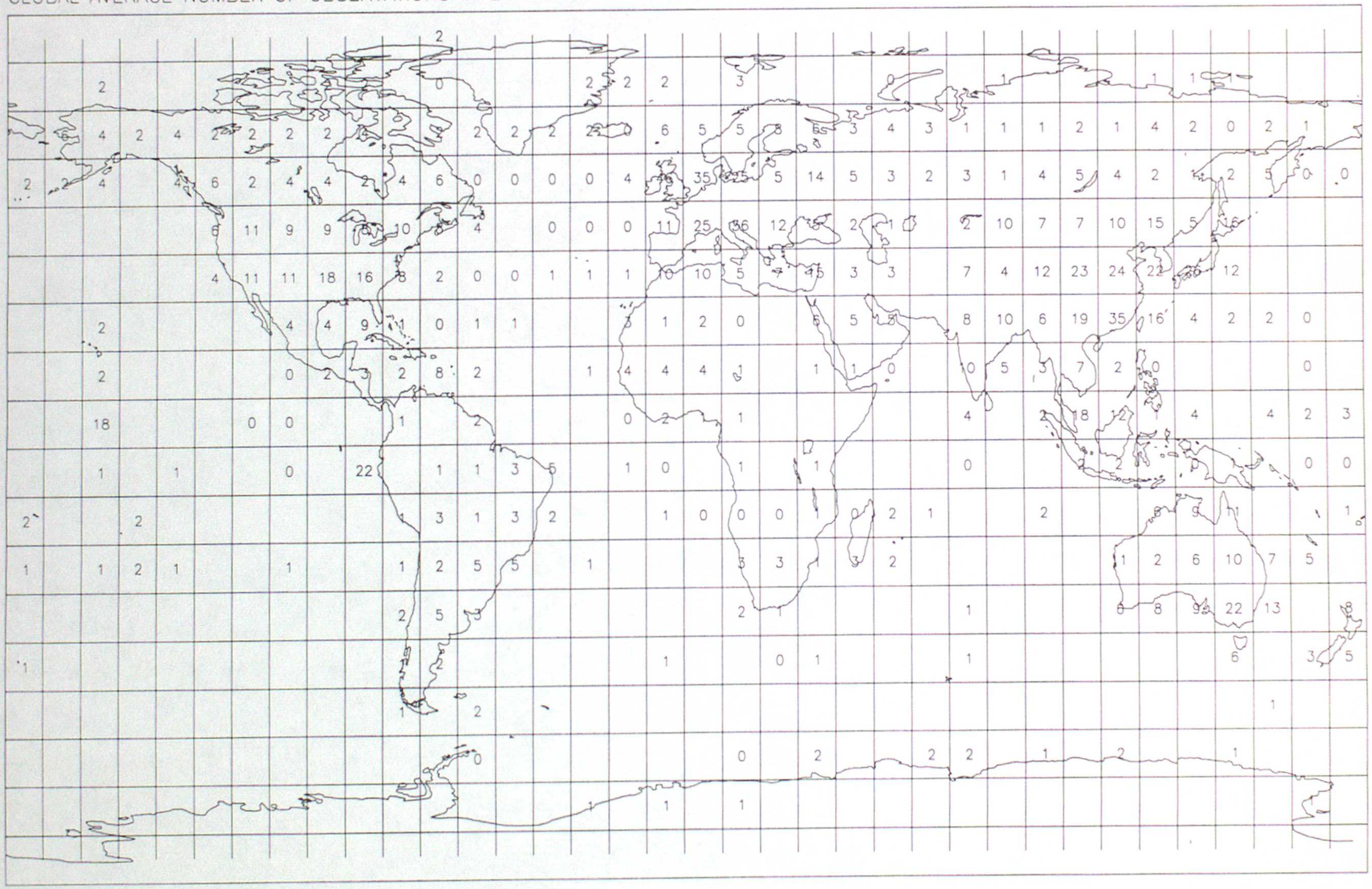

2
2 0 2 2 2 3 1 1 1 1
6 4 2 4 2 2 2 2 2 2 2 2 6 5 5 8 65 3 4 3 1 1 1 2 1 4 2 0 2 1
2 2 4 4 6 2 4 4 2 4 6 0 0 0 0 4 35 5 14 5 3 2 3 1 4 5 4 2 2 5 0 0
6 11 9 9 10 4 0 0 0 11 25 36 12 2 1 2 10 7 7 10 15 5 16
4 11 11 18 16 8 2 0 0 1 1 1 10 10 5 45 3 3 7 4 12 23 24 22 36 12
2 4 4 9 1 0 1 1 3 1 2 0 5 5 5 8 10 6 19 35 16 4 2 2 0
2 0 2 3 2 8 2 1 4 4 4 1 1 1 0 0 5 3 7 2 0 0
18 0 0 1 2 0 2 1 4 2 18 12 1 4 4 2 3
1 1 0 22 1 1 3 5 1 0 1 1 0 2 2 0 0
2 2 1 3 1 3 2 1 0 0 0 1 0 2 1 2 8 9 1 1 1
1 1 2 1 1 1 2 5 5 1 3 3 1 3 2 1 2 6 10 7 5
2 5 3 2 1 1 0 8 92 22 13 8
1 2 1 0 1 1 6 3 5
1 2 1
0 0 2 2 2 1 2 1
1 1 1 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: OCTOBER 2000

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 500.0 - 150.0 hPa

Element monitored :WIND DIRECTION in degrees

Parameters monitored

:NUM OBS :Average number of observations at all levels.

:BIAS :Mean difference of observations from background values from all levels.

:MAX SPREAD :(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels

:SD :SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
17280	00	DD	38/ 40	23	-10.7	4.3	13.2
17280	12	DD	38/ 40	24	-12.9	6.5	14.5
29612	12	DD	55/ 78	25	22.3	4.3	10.4
42339	00	DD	26/ 73	22	14.6	5.7	16.1
42339	12	DD	26/ 73	19	14.9	4.2	17.7
42397	12	DD	27/ 88	15	15.5	3.7	9.7
43369	00	DD	8/ 73	17	19.4	6.8	20.9
48327	00	DD	19/ 99	10	11.3	9.9	25.6
48455	12	DD	14/ 101	10	20.9	5.9	29.5
48914	00	DD	9/ 105	6	38.7	8.3	18.7
59280	00	DD	24/ 113	20	12.6	6.9	20.6
62337	00	DD	31/ 34	28	-16.3	6.9	13.9
62337	12	DD	31/ 34	27	-16.9	1.5	11.8
78866	00	DD	18/ -63	20	-11.6	6.6	16.5

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH: OCTOBER 2000

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES-8, GOES-10, METEOSAT-5, METEOSAT-7, GMS-5, INSAT.

Standard of comparison :Background field from UKMO global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer 701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

:Mean wind

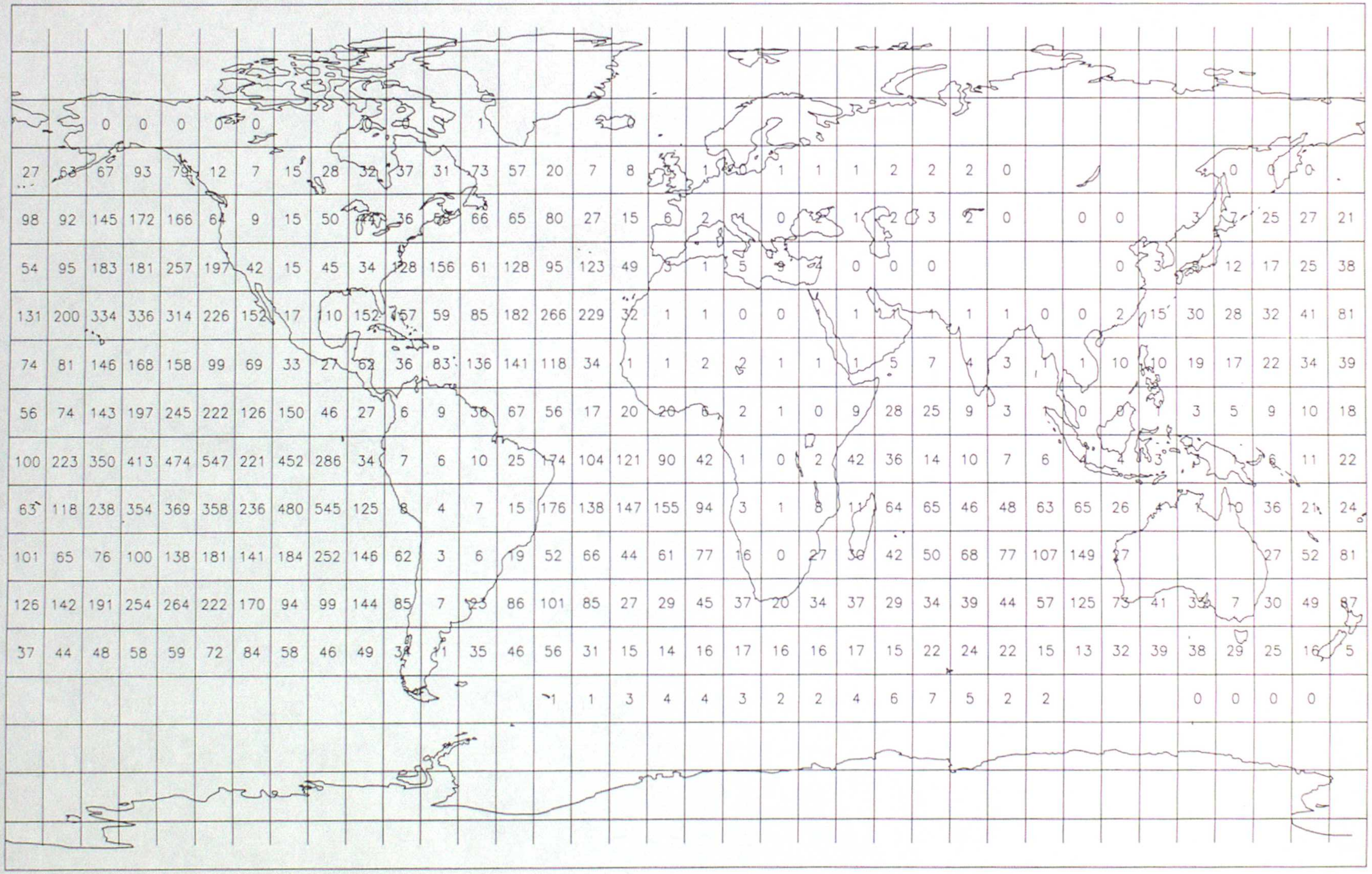
:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
OCTOBER 2000

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 25146

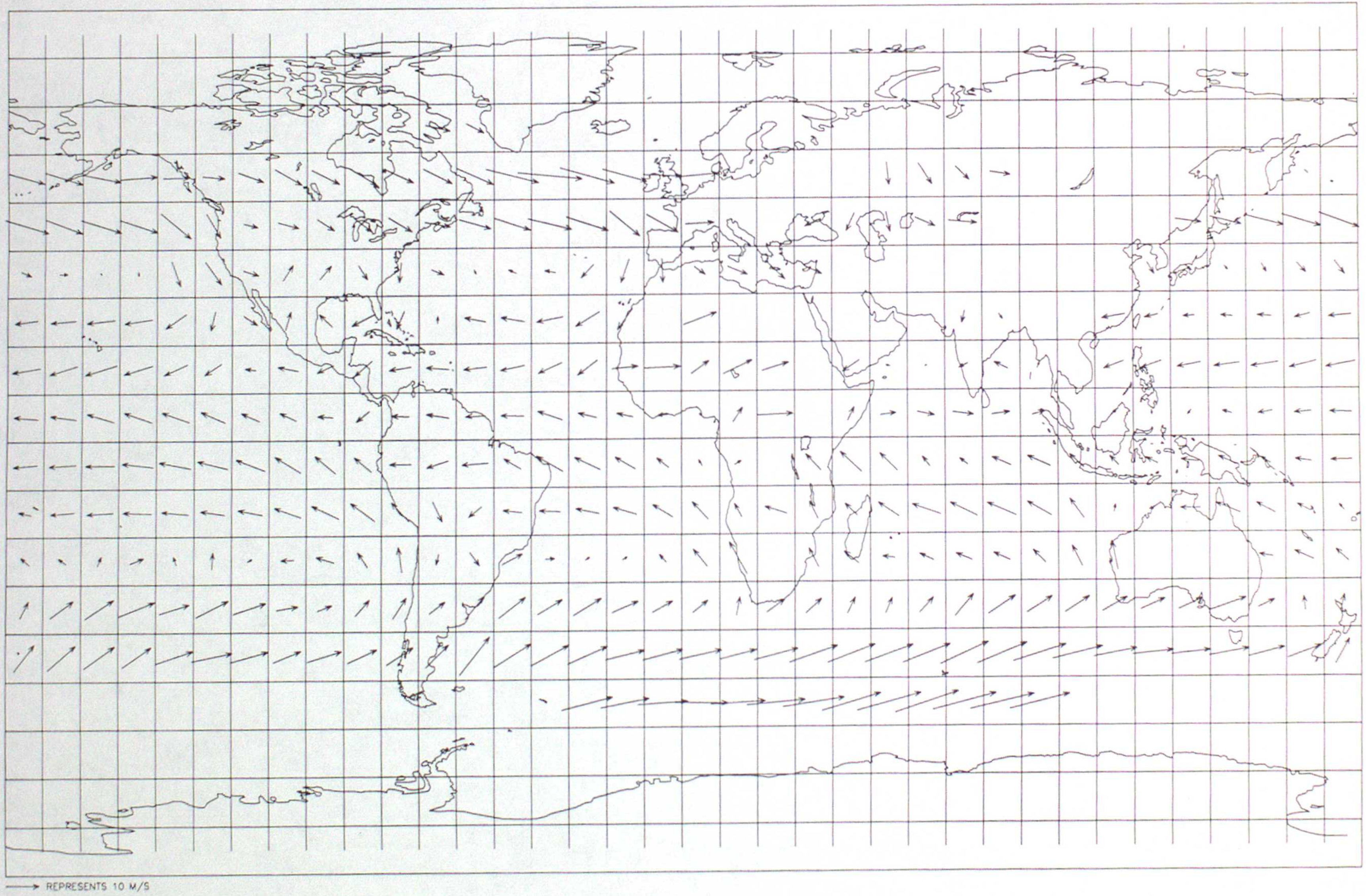


		0	0	0	0	0			0	0		1																							
27	63	67	93	79	12	7	15	28	32	37	31	73	57	20	7	8	3	1	0	1	1	1	2	2	2	0						0	0	0	
98	92	145	172	166	64	9	15	50	44	36	58	66	65	80	27	15	6	2	4	0	2	1	2	3	2	0		0	0		3	7	25	27	21
54	95	183	181	257	197	42	15	45	34	128	156	61	128	95	123	49	3	1	5	9	4	0	0	0					0	3	8	12	17	25	38
131	200	334	336	314	226	152	17	110	152	157	59	85	182	266	229	32	1	1	0	0	1	1	1	1	1	1	0	0	2	15	30	28	32	41	81
74	81	146	168	158	99	69	33	27	62	36	83	136	141	118	34	1	1	2	2	1	1	1	5	7	4	3	1	1	10	10	19	17	22	34	39
56	74	143	197	245	222	126	150	46	27	6	9	36	67	56	17	20	20	6	2	1	0	9	28	25	9	3	1	0	0	1	3	5	9	10	18
100	223	350	413	474	547	221	452	286	34	7	6	10	25	174	104	121	90	42	1	0	2	42	36	14	10	7	6	4	4	3	3	1	6	11	22
63	118	238	354	369	358	236	480	545	125	8	4	7	15	176	138	147	155	94	3	1	8	11	64	65	46	48	63	65	26	4	1	10	36	21	24
101	65	76	100	138	181	141	184	252	146	62	3	6	19	52	66	44	61	77	16	0	27	30	42	50	68	77	107	149	27				27	52	81
126	142	191	254	264	222	170	94	99	144	85	7	23	86	101	85	27	29	45	37	20	34	37	29	34	39	44	57	125	73	41	33	7	30	49	87
37	44	48	58	59	72	84	58	46	49	34	11	35	46	56	31	15	14	16	17	16	16	17	15	22	24	22	15	13	32	39	38	29	25	16	5
														1	1	3	4	4	3	2	2	4	6	7	5	2	2				0	0	0	0	

SATOB METEOSAT W/V VECTOR MEAN WINDS BETWEEN 701–1000 HPA

FIGURE 11

OCTOBER 2000
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


→ REPRESENTS 10 M/S

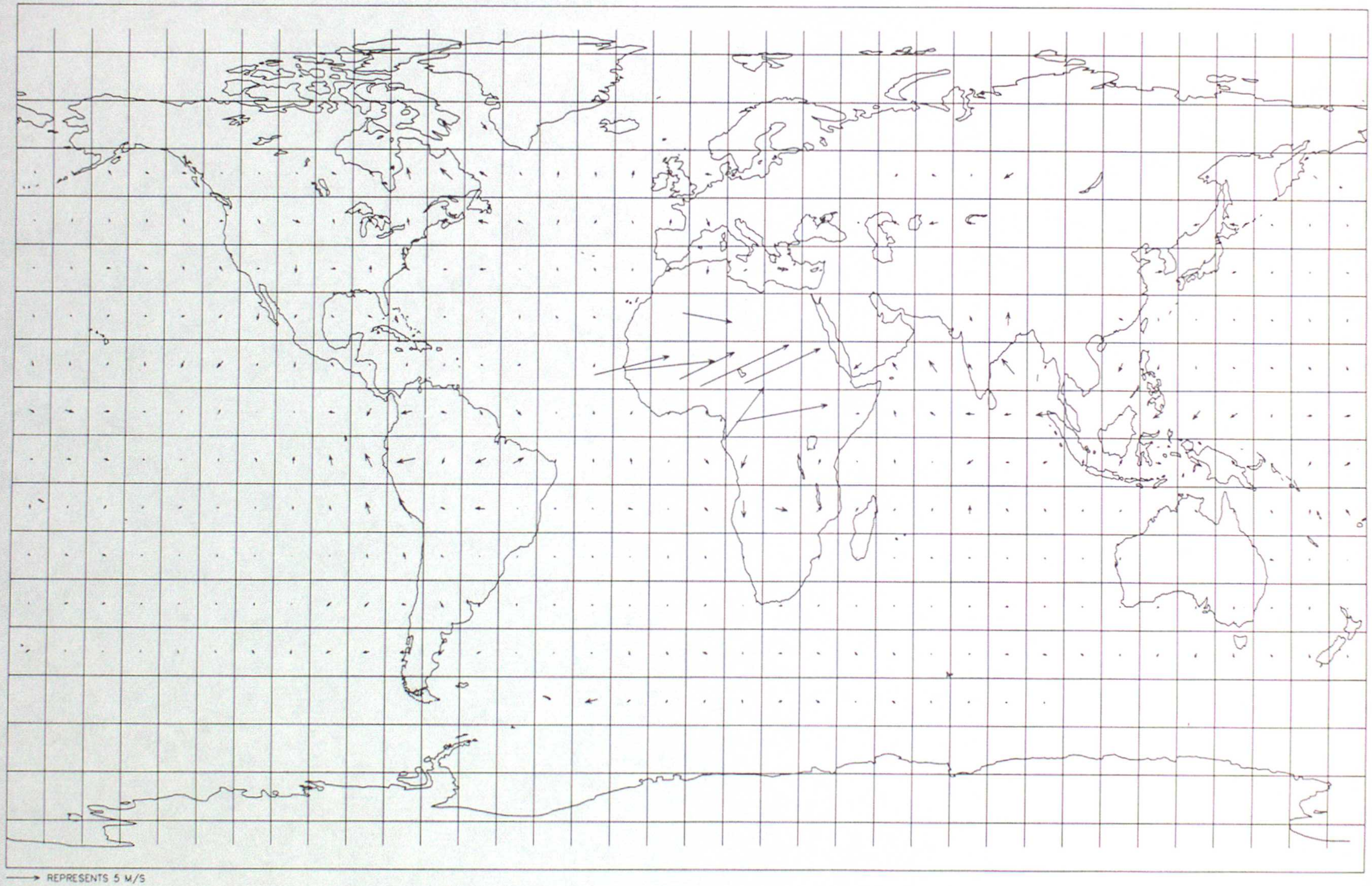
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 701-1000 HPA

FIGURE 12

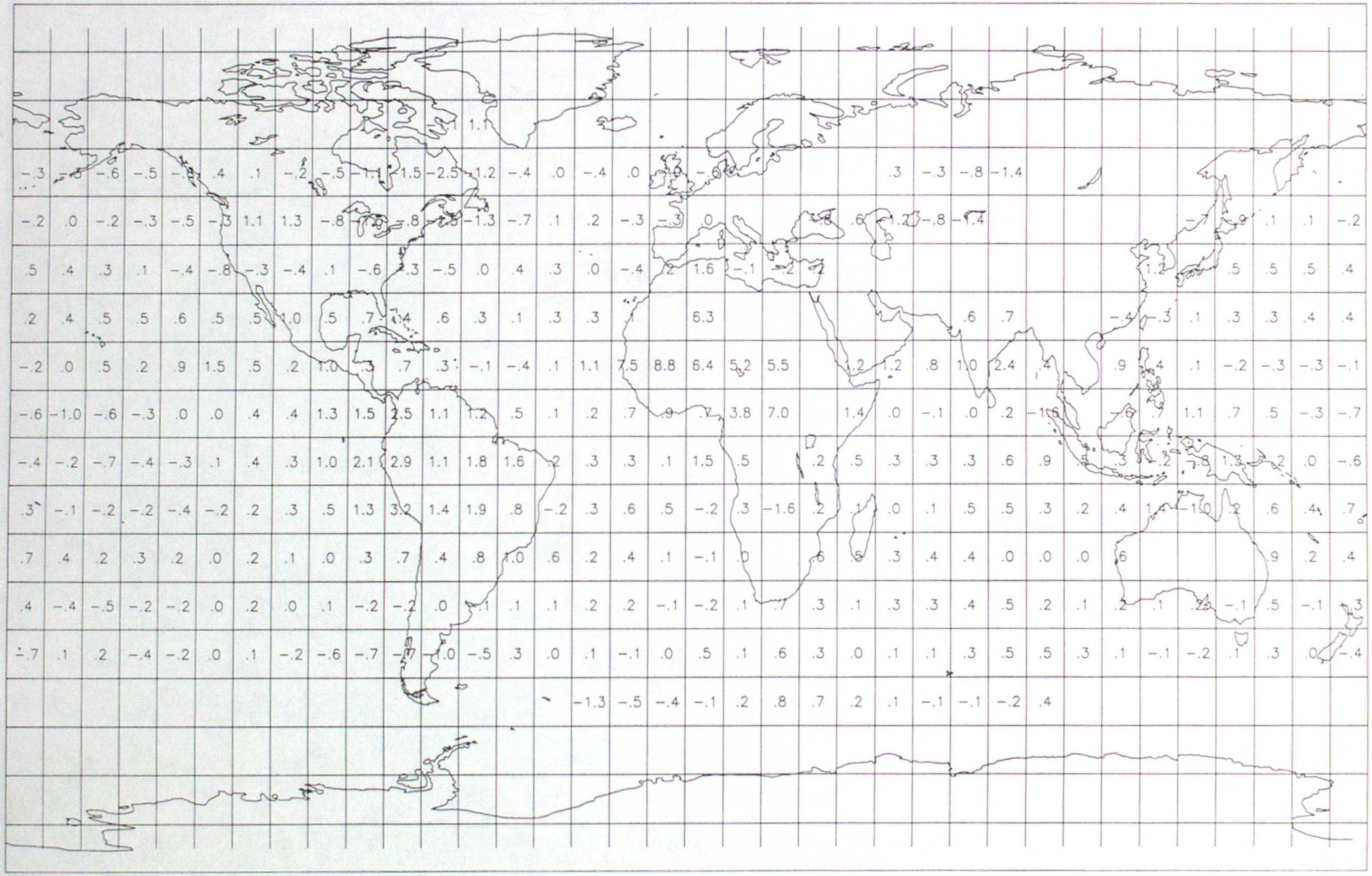
OCTOBER 2000

ALL OBSERVATIONS

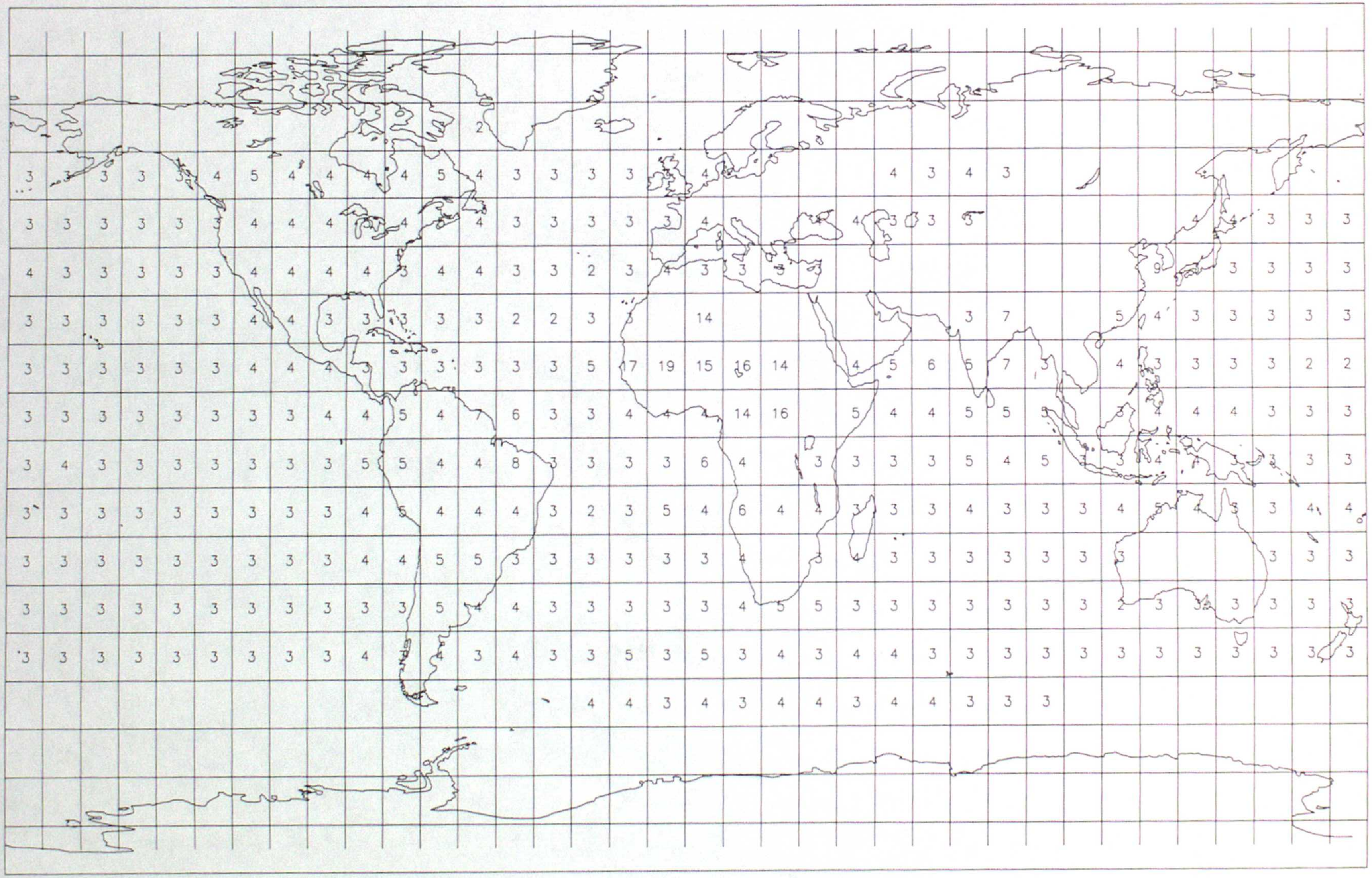
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
OCTOBER 2000
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

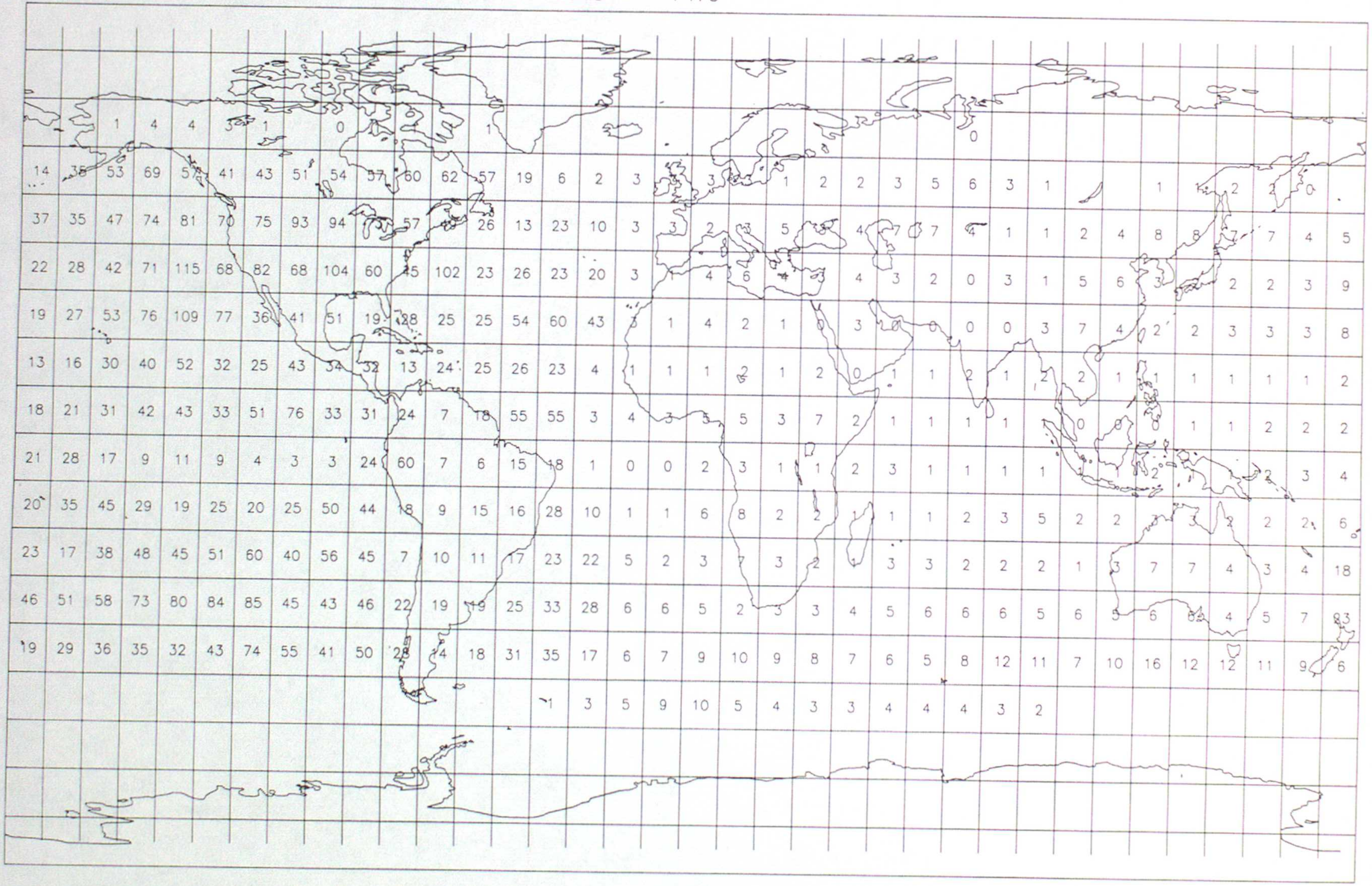

.1 1.1
-.3 -.5 -.6 -.5 -.8 .4 .1 -.2 -.5 -1.1 -1.5 -2.5 -1.2 -.4 .0 -.4 .0 .0 -.6 .3 -.3 -.8 -1.4
-.2 .0 -.2 -.3 -.5 -.3 1.1 1.3 -.8 -1.0 -.8 -1.5 -1.3 -.7 .1 .2 -.3 -.3 .0 -.8 .6 -1.2 -.8 -1.4 -.7 -.9 .1 .1 -.2
.5 .4 .3 .1 -.4 -.8 -.3 -.4 .1 -.6 .3 -.5 .0 .4 .3 .0 -.4 .2 1.6 -.1 -.2 .2 1.2 .5 .5 .5 .4
.2 .4 .5 .5 .6 .5 .5 1.0 .5 .7 .4 .6 .3 .1 .3 .3 .1 6.3 .6 .7 -.4 -.3 .1 .3 .3 .4 .4
-.2 .0 .5 .2 .9 1.5 .5 .2 1.0 .3 .7 .3 -.1 -.4 .1 1.1 7.5 8.8 6.4 5.2 5.5 1.2 1.2 .8 1.0 2.4 .4 .9 .4 .1 -.2 -.3 -.3 -.1
-.6 -1.0 -.6 -.3 .0 .0 .4 .4 1.3 1.5 2.5 1.1 1.2 .5 .1 .2 .7 .9 .7 3.8 7.0 1.4 .0 -.1 .0 .2 -1.6 -.6 .7 1.1 .7 .5 -.3 -.7
-.4 -.2 -.7 -.4 -.3 .1 .4 .3 1.0 2.1 2.9 1.1 1.8 1.6 .2 .3 .3 .1 1.5 .5 .2 .5 .3 .3 .3 .6 .9 .5 .3 .2 .8 1.3 .2 .0 -.6
.3 -.1 -.2 -.2 -.4 -.2 .2 .3 .5 1.3 3.2 1.4 1.9 .8 -.2 .3 .6 .5 -.2 .3 -1.6 .2 .1 .0 .1 .5 .5 .3 .2 .4 1.4 -1.0 .2 .6 .4 .7
.7 .4 .2 .3 .2 .0 .2 .1 .0 .3 .7 .4 .8 1.0 .6 .2 .4 .1 -.1 .0 .6 .5 .3 .4 .4 .0 .0 .0 .6 .9 .2 .4
.4 -.4 -.5 -.2 -.2 .0 .2 .0 .1 -.2 -.2 .0 .1 .1 .1 .2 .2 -.1 -.2 .1 .7 .3 .1 .3 .3 .4 .5 .2 .1 .2 .1 .2 -.1 .5 -.1 .3
-.7 .1 .2 -.4 -.2 .0 .1 -.2 -.6 -.7 -.7 -1.0 -.5 .3 .0 .1 -.1 .0 .5 .1 .6 .3 .0 .1 .1 .3 .5 .5 .3 .1 -.1 -.2 .1 .3 .0 -.4
-1.3 -.5 -.4 -.1 .2 .8 .7 .2 .1 -.1 -.1 -.2 .4

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
OCTOBER 2000
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


2
3 3 3 3 3 4 5 4 4 4 4 5 4 3 3 3 3 3 4 4 3 4 3
3 3 3 3 3 3 4 4 4 3 4 4 4 3 3 3 3 3 4 4 4 3 3 3 4 4 3 3 3
4 3 3 3 3 3 4 4 4 4 3 4 4 3 3 2 3 4 3 3 3 3 9 3 3 3 3
3 3 3 3 3 3 4 4 3 3 3 3 3 2 2 3 3 14 3 7 5 4 3 3 3 3 3
3 3 3 3 3 3 4 4 4 3 3 3 3 3 3 5 17 19 15 16 14 4 5 6 5 7 3 4 3 3 3 3 2 2
3 3 3 3 3 3 3 3 4 4 5 4 7 6 3 3 4 4 4 14 16 5 4 4 5 5 3 3 4 4 4 3 3 3
3 4 3 3 3 3 3 3 3 5 5 4 4 8 3 3 3 3 6 4 3 3 3 3 5 4 5 3 3 4 4 3 3 3 3
3 3 3 3 3 3 3 3 3 4 5 4 4 4 3 2 3 5 4 6 4 4 3 3 3 4 3 3 3 4 5 4 3 3 4 4
3 3 3 3 3 3 3 3 3 4 4 5 5 3 3 3 3 3 3 4 3 4 3 3 3 3 3 3 3 3 3 3
3 3 3 3 3 3 3 3 3 3 3 5 4 4 3 3 3 3 3 4 5 5 3 3 3 3 3 3 3 2 3 3 3 3 3 3
3 3 3 3 3 3 3 3 3 4 4 3 4 3 3 5 3 5 3 4 3 4 4 3 3 3 3 3 3 3 3 3 3 3 3
4 4 3 4 3 4 4 3 4 4 3 3 3

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
OCTOBER 2000

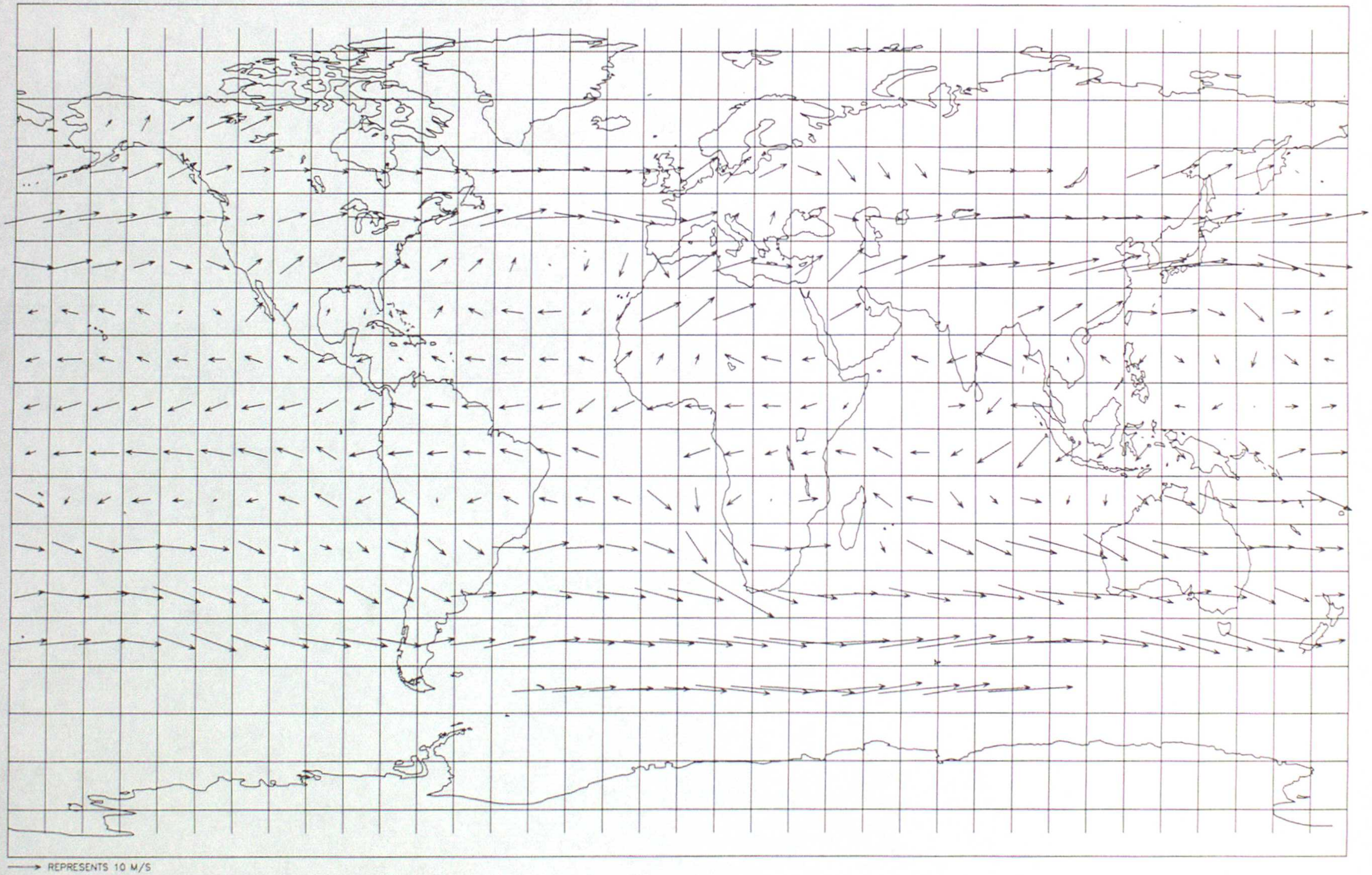
GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 7479



		1	4	4	3	1		0				1													0										
14	35	53	69	57	41	43	51	54	57	60	62	57	19	6	2	3		3	3	1	2	2	3	5	6	3	1			1	1	2	2	0	
37	35	47	74	81	70	75	93	94	75	57	49	26	13	23	10	3	3	2	3	5	3	4	7	7	4	1	1	2	4	8	8	7	7	4	5
22	28	42	71	115	68	82	68	104	60	45	102	23	26	23	20	3	1	4	6	4	3	4	3	2	0	3	1	5	6	3		2	2	3	9
19	27	53	76	109	77	36	41	51	19	28	25	25	54	60	43	3	1	4	2	1	0	3	0	0	0	0	3	7	4	2	2	3	3	3	8
13	16	30	40	52	32	25	43	34	32	13	24	25	26	23	4	1	1	1	2	1	2	0	1	1	2	1	2	2	1	1	1	1	1	1	2
18	21	31	42	43	33	51	76	33	31	24	7	18	55	55	3	4	3	5	5	3	7	2	1	1	1	1	1	0	0	0	1	1	2	2	2
21	28	17	9	11	9	4	3	3	24	60	7	6	15	18	1	0	0	2	3	1	1	2	3	1	1	1	1	1	1	2	1	1	2	3	4
20	35	45	29	19	25	20	25	50	44	18	9	15	16	28	10	1	1	6	8	2	2	1	1	1	2	3	5	2	2	3	3	2	2	2	6
23	17	38	48	45	51	60	40	56	45	7	10	11	17	23	22	5	2	3	7	3	2	1	3	3	2	2	2	1	3	7	7	4	3	4	18
46	51	58	73	80	84	85	45	43	46	22	19	19	25	33	28	6	6	5	2	3	3	4	5	6	6	6	5	6	5	6	6	4	5	7	83
19	29	36	35	32	43	74	55	41	50	28	14	18	31	35	17	6	7	9	10	9	8	7	6	5	8	12	11	7	10	16	12	12	11	9	6
														1	3	5	9	10	5	4	3	3	4	4	4	3	2								

SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA
OCTOBER 2000
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 16


REPRESENTS 10 M/S

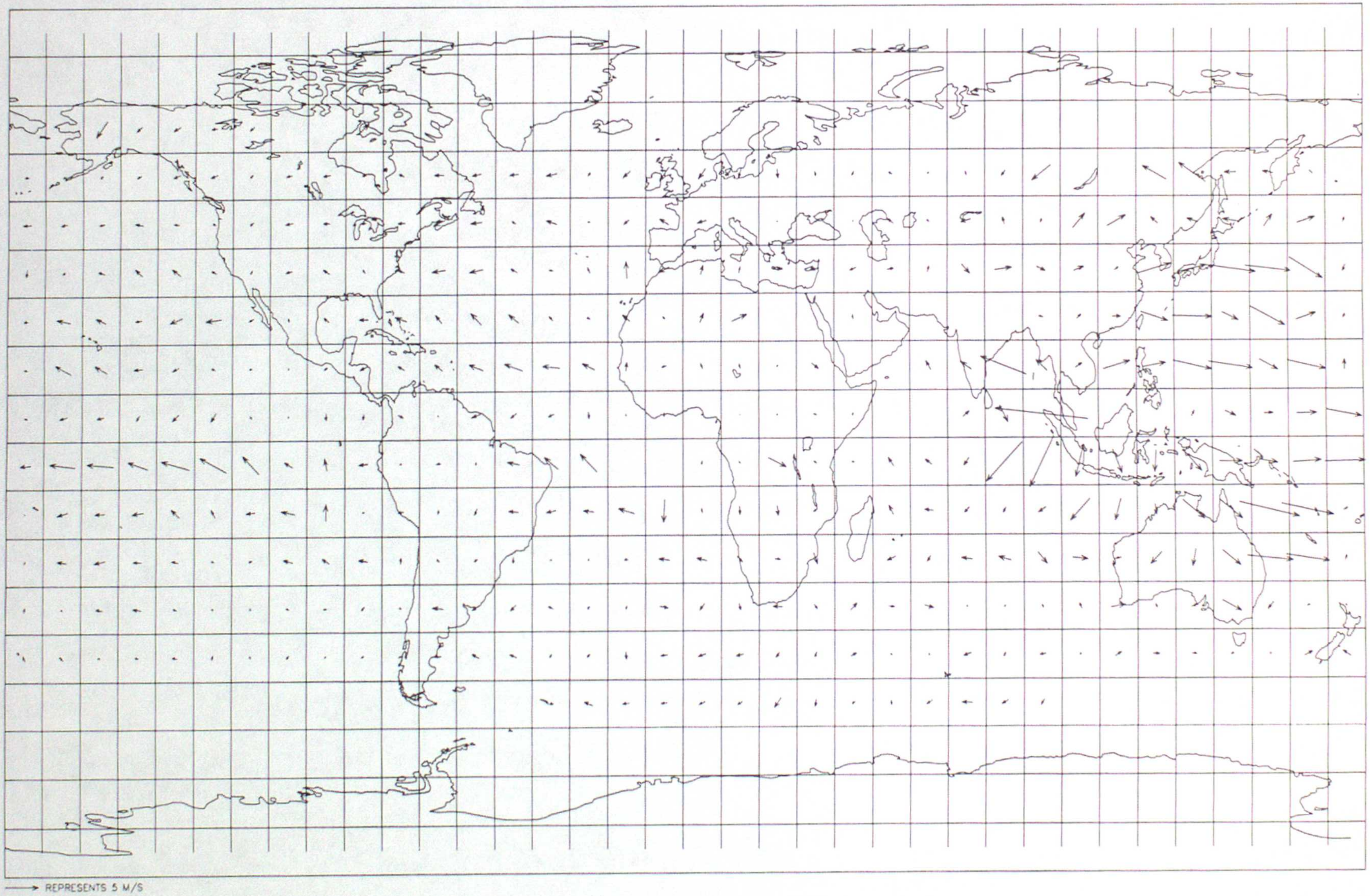
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 401-700 HPA

OCTOBER 2000

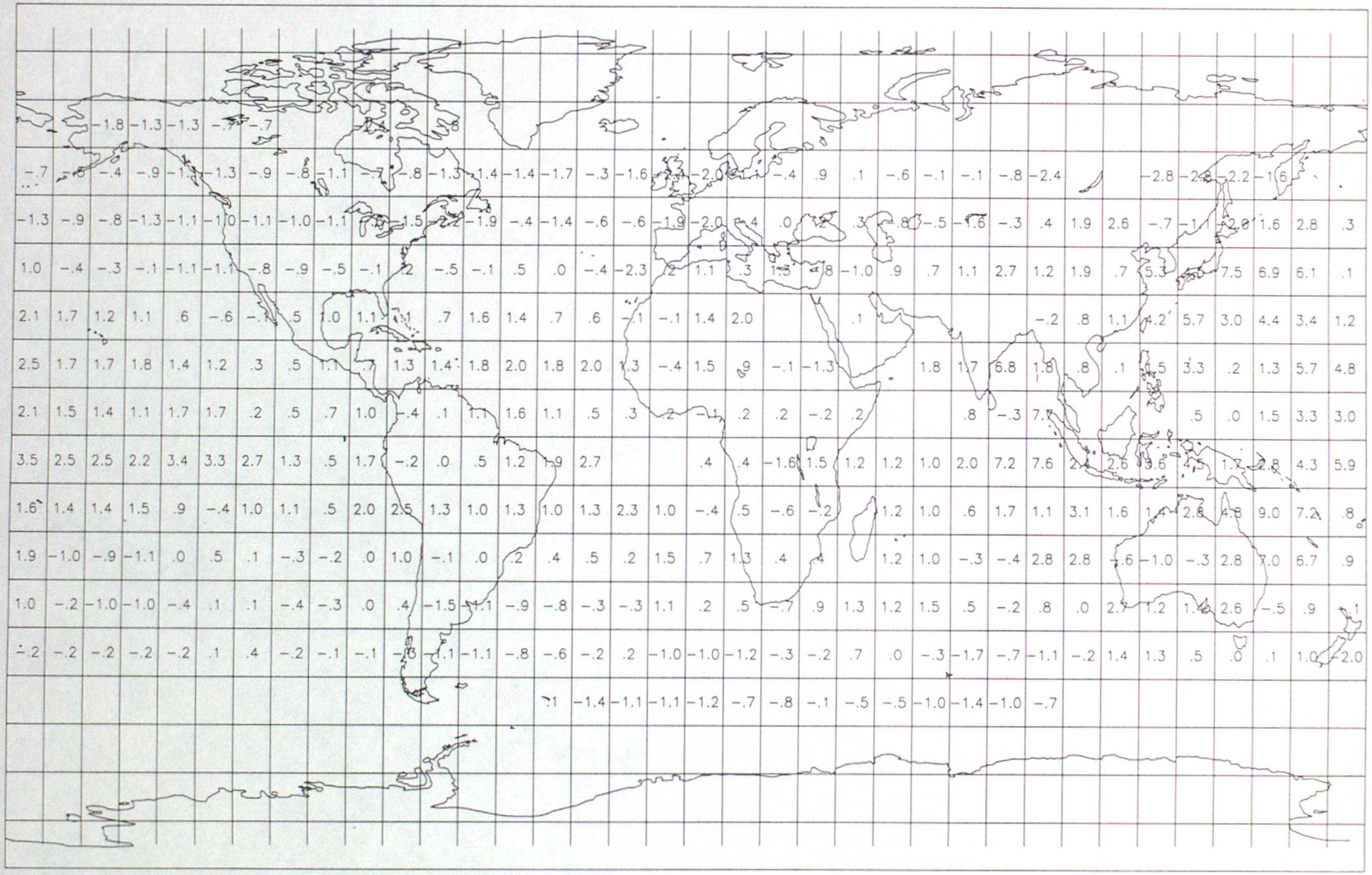
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

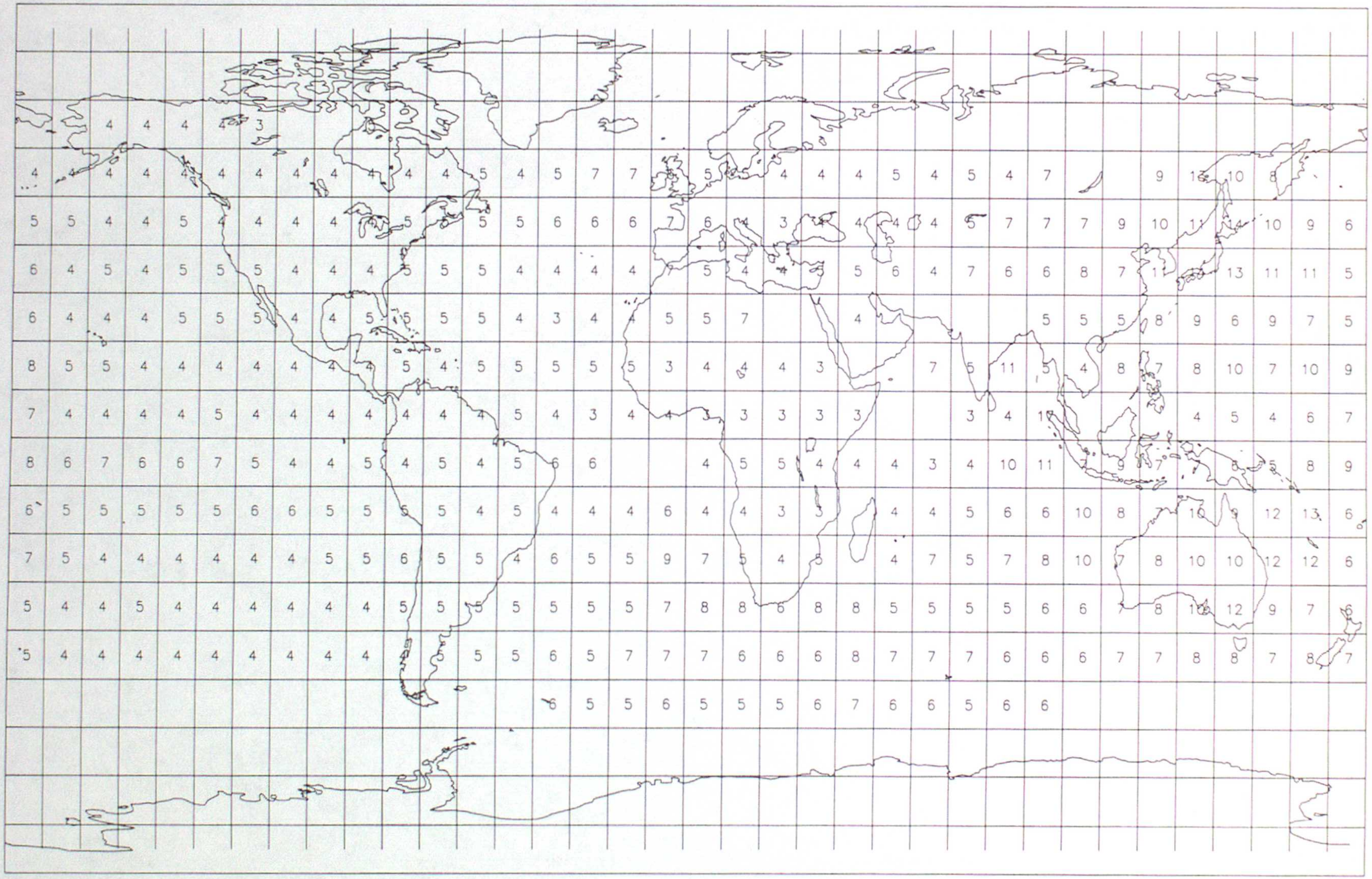
FIGURE 17



SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
OCTOBER 2000
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

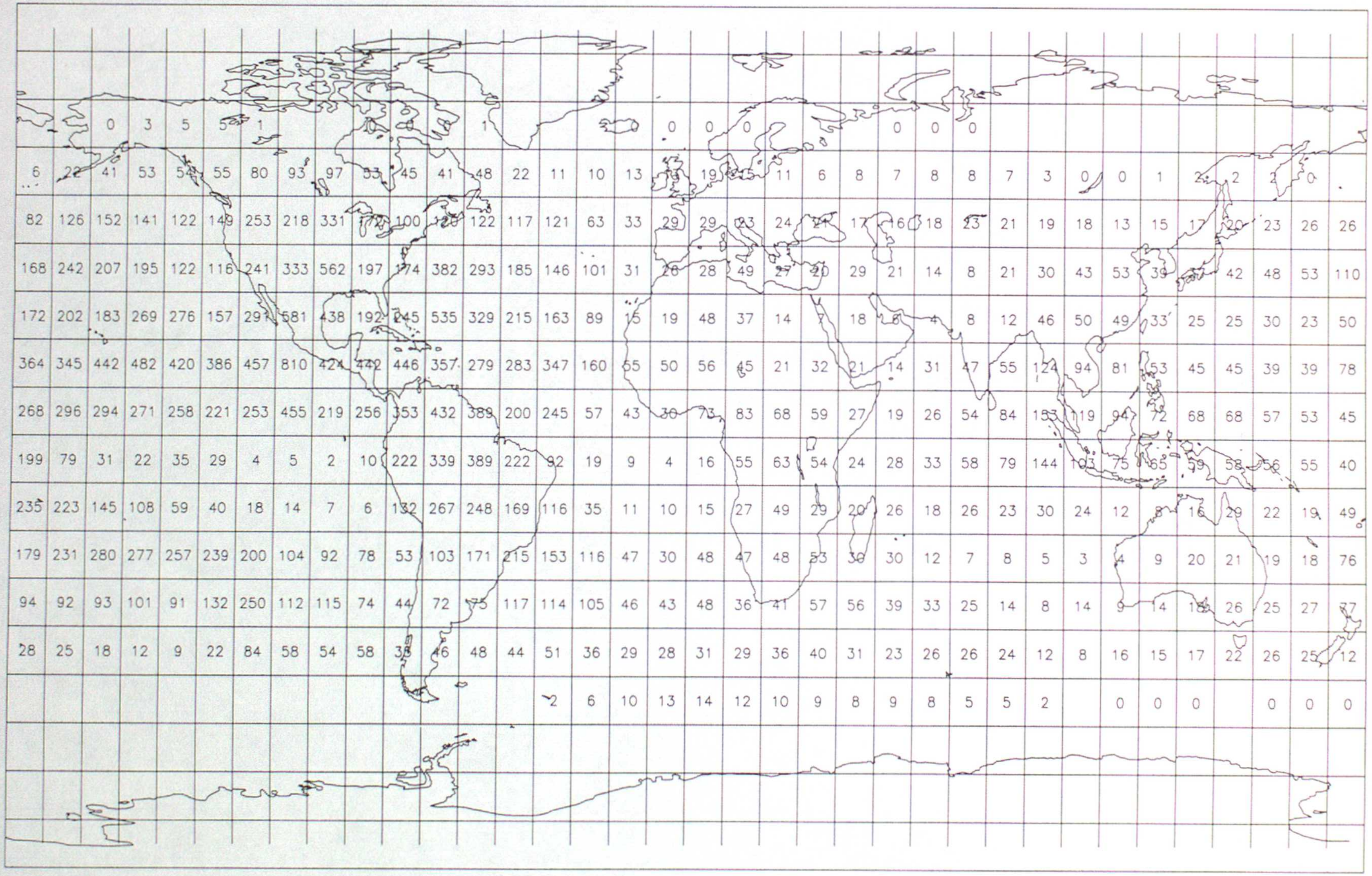

-1.8 -1.3 -1.3 -.7 -.7 1.4 .8
-.7 -.5 -.4 -.9 -1.3 -1.3 -.9 -.8 -1.1 -.7 -.8 -1.3 -1.4 -1.4 -1.7 -.3 -1.6 -2.1 -2.0 -1.1 -.4 .9 .1 -.6 -.1 -.1 -.8 -2.4 -2.8 -2.8 -2.2 -1.6
-1.3 -.9 -.8 -1.3 -1.1 -1.0 -1.1 -1.0 -1.1 -.6 -1.5 -2.2 -1.9 -.4 -1.4 -.6 -.6 -1.9 -2.0 .4 .0 .2 .3 -.8 -.5 -1.6 -.3 .4 1.9 2.6 -.7 -1.1 -2.0 1.6 2.8 .3
1.0 -.4 -.3 -.1 -1.1 -1.1 -.8 -.9 -.5 -.1 .2 -.5 -.1 .5 .0 -.4 -2.3 .2 1.1 .3 1.3 .8 -1.0 .9 .7 1.1 2.7 1.2 1.9 .7 5.3 4.5 7.5 6.9 6.1 .1
2.1 1.7 1.2 1.1 .6 -.6 -.1 .5 1.0 1.1 .1 .7 1.6 1.4 .7 .6 -.1 -.1 1.4 2.0 .1 -.2 .8 1.1 4.2 5.7 3.0 4.4 3.4 1.2
2.5 1.7 1.7 1.8 1.4 1.2 .3 .5 1.1 .7 1.3 1.4 1.8 2.0 1.8 2.0 1.3 -.4 1.5 .9 -.1 -1.3 1.8 1.7 6.8 1.8 .8 .1 1.5 3.3 .2 1.3 5.7 4.8
2.1 1.5 1.4 1.1 1.7 1.7 .2 .5 .7 1.0 -.4 .1 1.1 1.6 1.1 .5 .3 .2 -.1 .2 .2 -.2 .2 .8 -.3 7.7 .5 .0 1.5 3.3 3.0
3.5 2.5 2.5 2.2 3.4 3.3 2.7 1.3 .5 1.7 -.2 .0 .5 1.2 1.9 2.7 .4 .4 -1.6 1.5 1.2 1.2 1.0 2.0 7.2 7.6 2.4 2.6 3.6 4.5 1.7 2.8 4.3 5.9
1.6 1.4 1.4 1.5 .9 -.4 1.0 1.1 .5 2.0 2.5 1.3 1.0 1.3 1.0 1.3 2.3 1.0 -.4 .5 -.6 -.2 1.2 1.0 .6 1.7 1.1 3.1 1.6 1.4 2.8 4.8 9.0 7.2 .8
1.9 -1.0 -.9 -1.1 .0 .5 .1 -.3 -.2 .0 1.0 -.1 .0 .2 .4 .5 .2 1.5 .7 1.3 .4 .4 1.2 1.0 -.3 -.4 2.8 2.8 -.6 -1.0 -.3 2.8 7.0 6.7 .9
1.0 -.2 -1.0 -1.0 -.4 .1 .1 -.4 -.3 .0 .4 -1.5 -1.1 -.9 -.8 -.3 -.3 1.1 .2 .5 -.7 .9 1.3 1.2 1.5 .5 -.2 .8 .0 2.7 1.2 1.4 2.6 -.5 .9 .1
-.2 -.2 -.2 -.2 -.2 .1 .4 -.2 -.1 -.1 -.6 -1.1 -1.1 -.8 -.6 -.2 .2 -1.0 -1.0 -1.2 -.3 -.2 .7 .0 -.3 -1.7 -.7 -1.1 -.2 1.4 1.3 .5 .0 .1 1.0 -2.0
.1 -1.4 -1.1 -1.1 -1.2 -.7 -.8 -.1 -.5 -.5 -1.0 -1.4 -1.0 -.7

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
OCTOBER 2000
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
OCTOBER 2000

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 38070



		0	3	5	5	1			0	0	0	1				0	0	0	0				0	0	0										
6	22	41	53	54	55	80	93	97	53	45	41	48	22	11	10	13	13	19	15	11	6	8	7	8	8	7	3	0	0	1	2	2	2	0	
82	126	152	141	122	149	253	218	331	172	100	120	122	117	121	63	33	29	29	23	24	21	17	16	18	23	21	19	18	13	15	17	20	23	26	26
168	242	207	195	122	116	241	333	562	197	174	382	293	185	146	101	31	26	28	49	27	20	29	21	14	8	21	30	43	53	39	37	42	48	53	110
172	202	183	269	276	157	291	581	438	192	245	535	329	215	163	89	15	19	48	37	14	7	18	6	4	8	12	46	50	49	33	25	25	30	23	50
364	345	442	482	420	386	457	810	424	442	446	357	279	283	347	160	55	50	56	45	21	32	21	14	31	47	55	124	94	81	53	45	45	39	39	78
268	296	294	271	258	221	253	455	219	256	353	432	389	200	245	57	43	30	73	83	68	59	27	19	26	54	84	153	119	94	72	68	68	57	53	45
199	79	31	22	35	29	4	5	2	10	222	339	389	222	92	19	9	4	16	55	63	54	24	28	33	58	79	144	103	75	65	59	58	56	55	40
235	223	145	108	59	40	18	14	7	6	132	267	248	169	116	35	11	10	15	27	49	29	20	26	18	26	23	30	24	12	8	16	29	22	19	49
179	231	280	277	257	239	200	104	92	78	53	103	171	215	153	116	47	30	48	47	48	53	30	30	12	7	8	5	3	4	9	20	21	19	18	76
94	92	93	101	91	132	250	112	115	74	44	72	75	117	114	105	46	43	48	36	41	57	56	39	33	25	14	8	14	9	14	18	26	25	27	37
28	25	18	12	9	22	84	58	54	58	38	46	48	44	51	36	29	28	31	29	36	40	31	23	26	26	24	12	8	16	15	17	22	26	25	12
														2	6	10	13	14	12	10	9	8	9	8	5	5	2		0	0	0		0	0	0

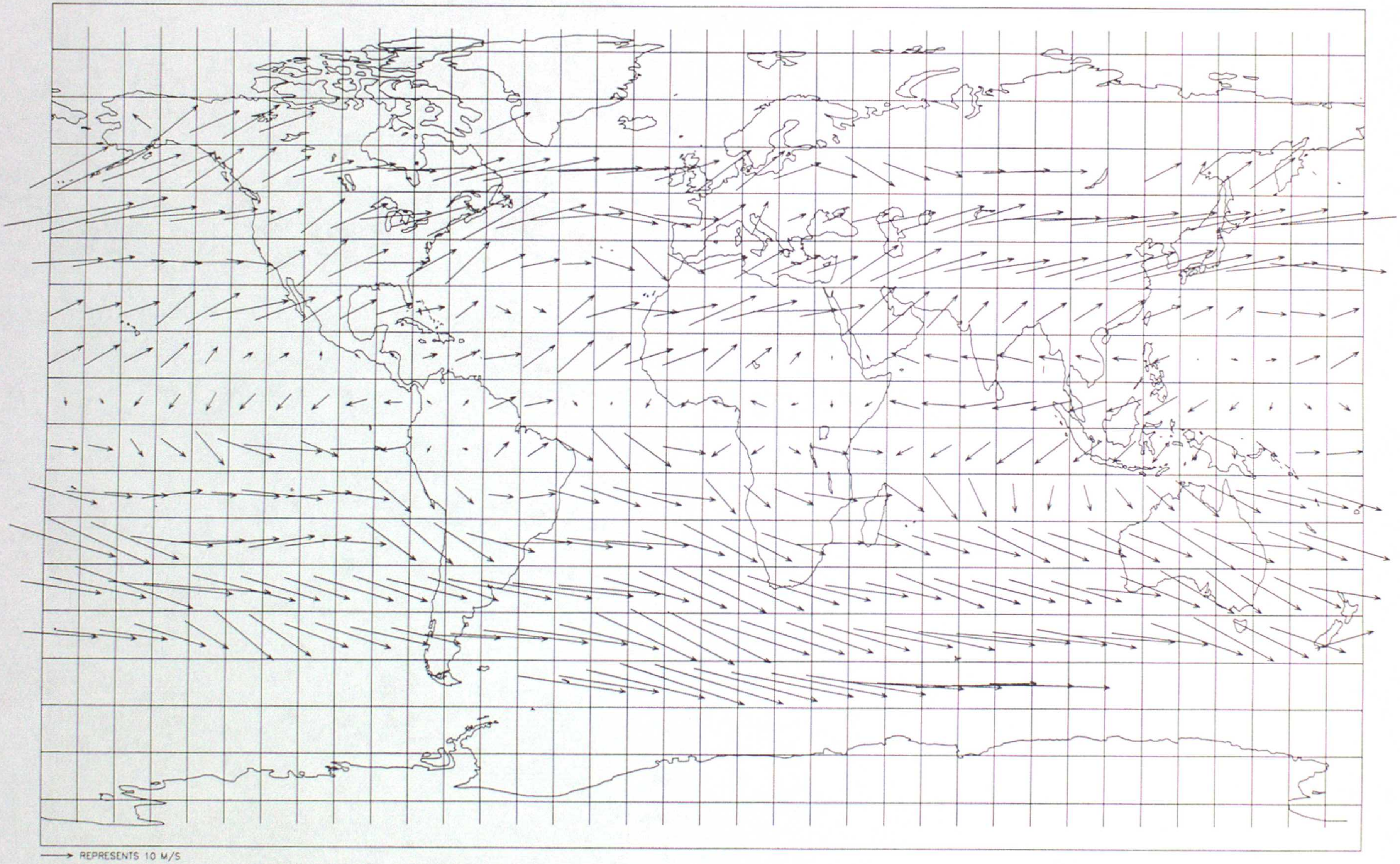
SATOB METEOSAT W/V VECTOR MEAN WINDS BETWEEN 101–400 HPA

FIGURE 21

OCTOBER 2000

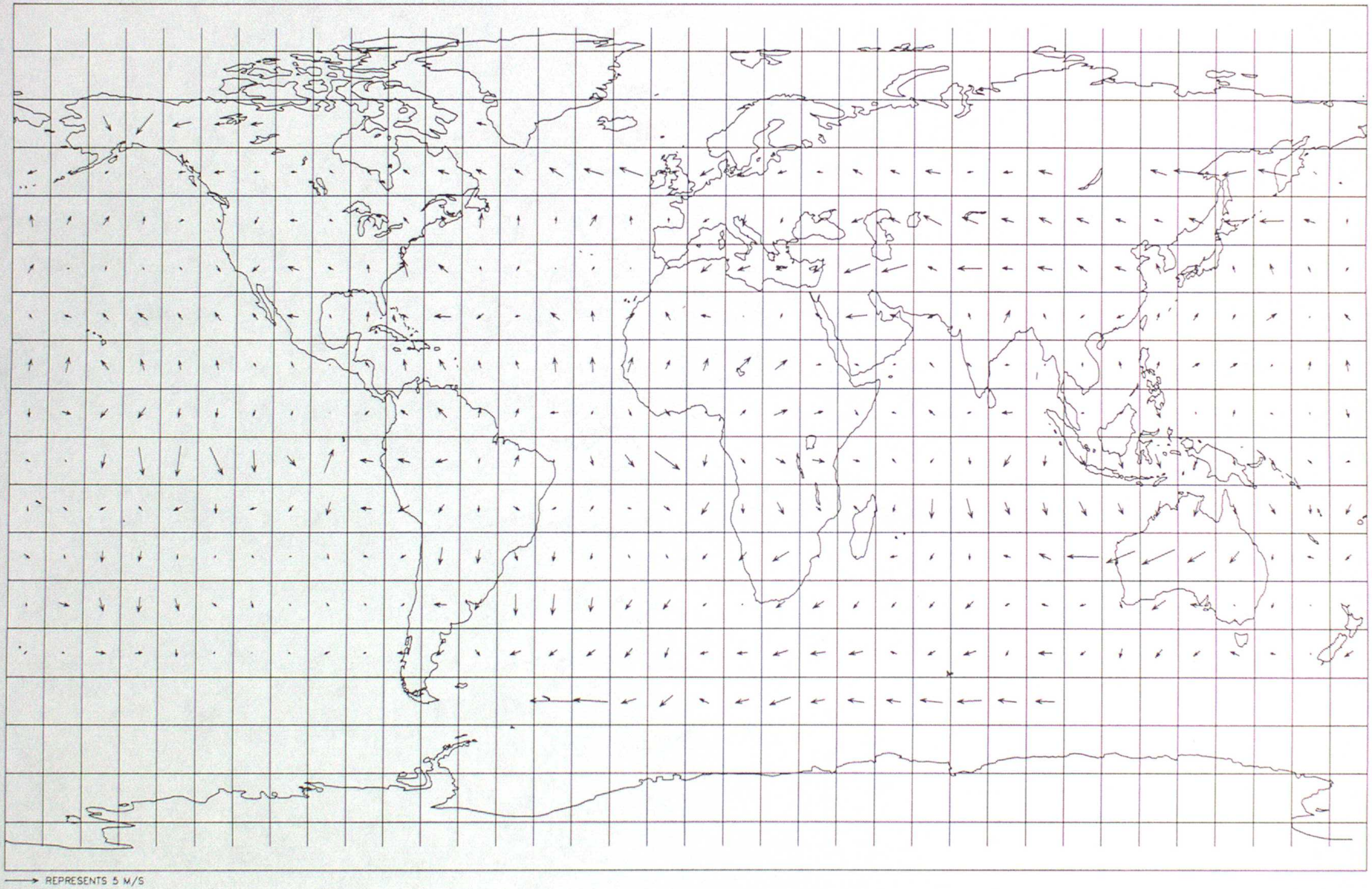
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

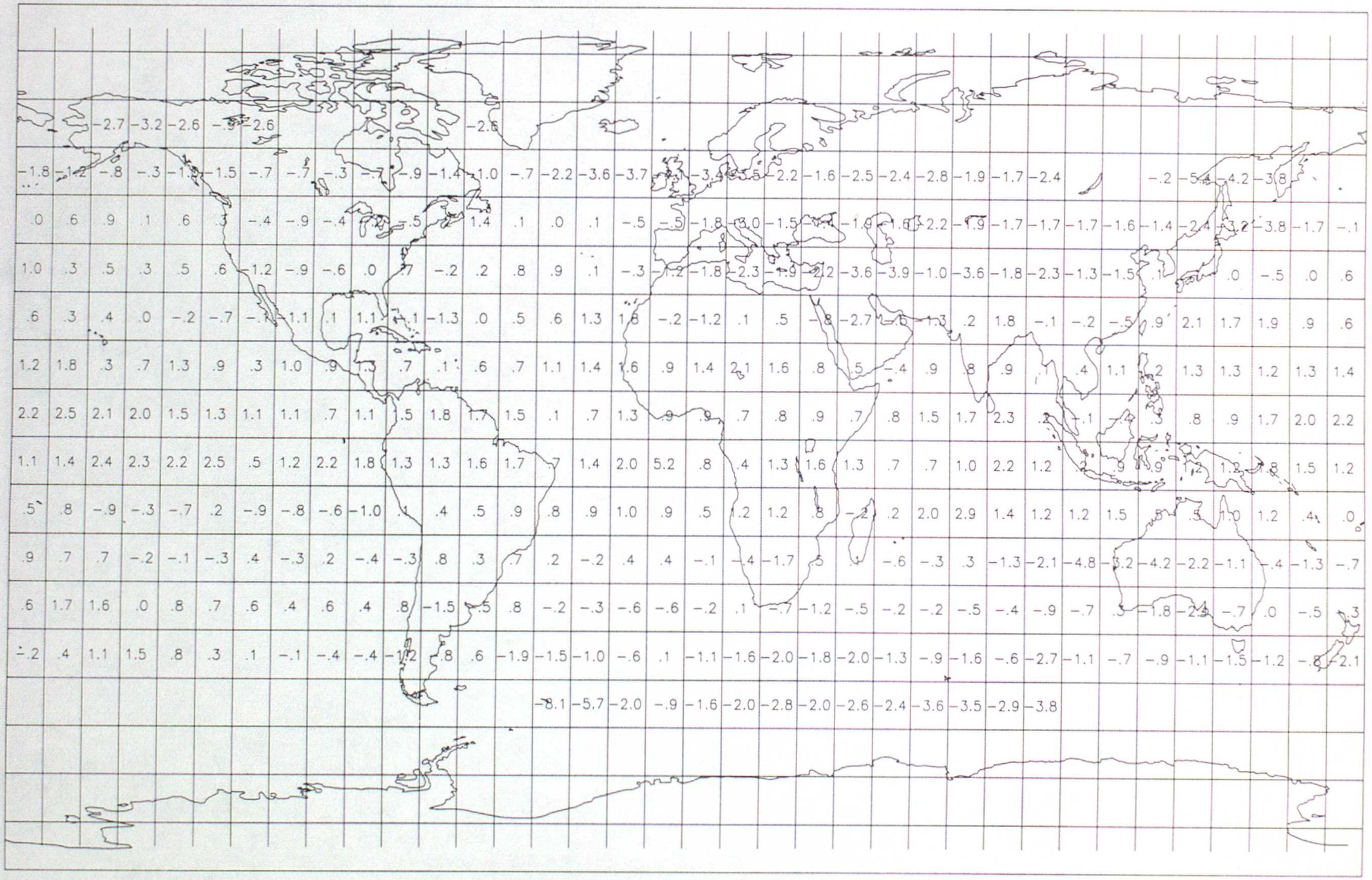

REPRESENTS 10 M/S

SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101–400 HPA
OCTOBER 2000
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

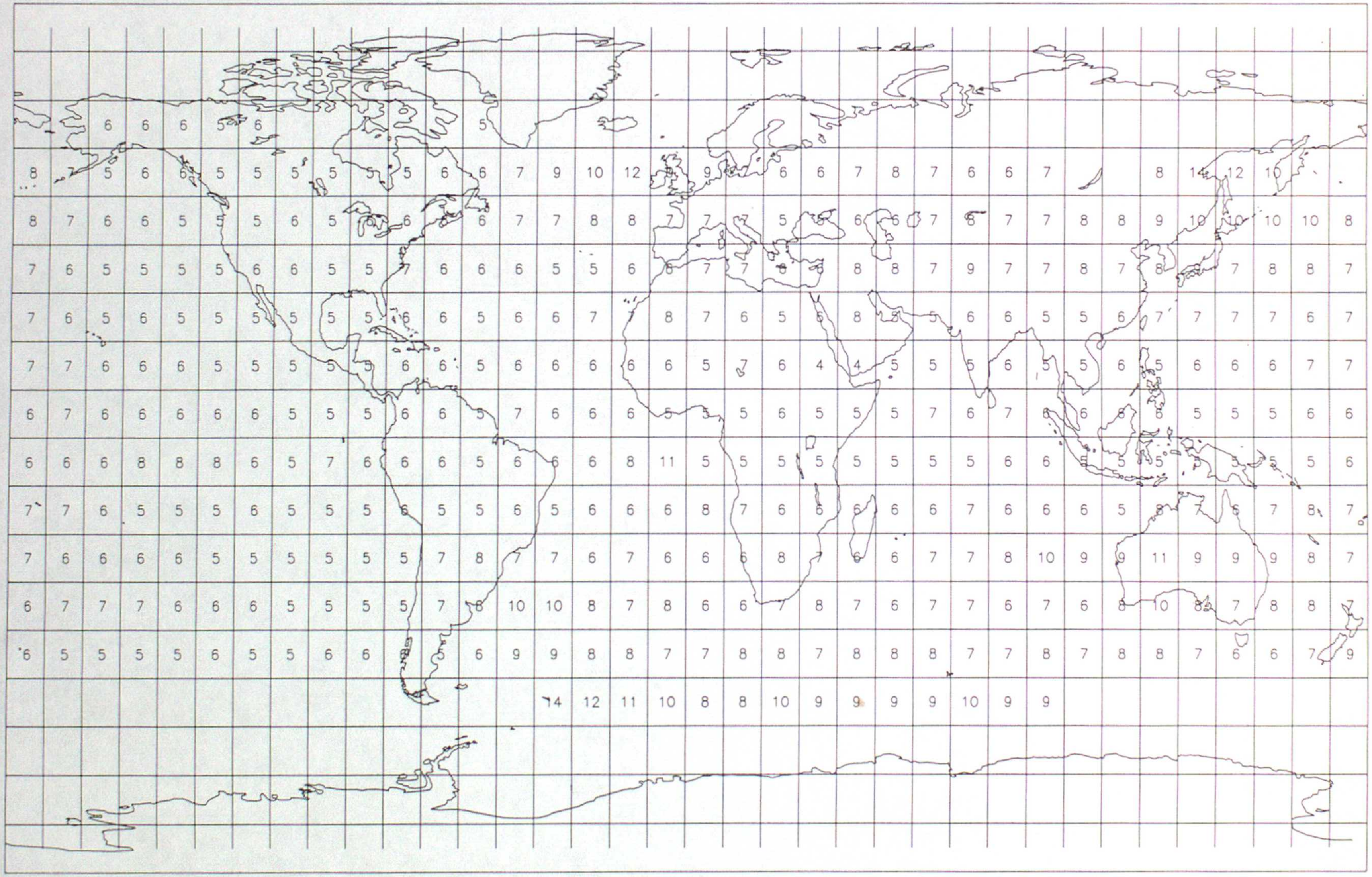
FIGURE 22



SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
OCTOBER 2000
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-2.7 -3.2 -2.6 -.9 -2.6 -2.6
-1.8 -1.2 -.8 -.3 -1.5 -1.5 -.7 -.7 -.3 -.7 -.9 -1.4 -1.0 -.7 -2.2 -3.6 -3.7 -3.4 -3.5 -2.2 -1.6 -2.5 -2.4 -2.8 -1.9 -1.7 -2.4 -.2 -5.4 -4.2 -3.8
.0 .6 .9 .1 .6 .3 -.4 -.9 -.4 .2 .5 1.4 .1 .0 .1 -.5 -.5 -1.8 -3.0 -1.5 -1.4 -1.9 -1.6 -2.2 -1.9 -1.7 -1.7 -1.7 -1.6 -1.4 -2.4 -3.2 -3.8 -1.7 -.1
1.0 .3 .5 .3 .5 .6 -1.2 -.9 -.6 .0 .7 -.2 .2 .8 .9 .1 -.3 -1.2 -1.8 -2.3 -1.9 -2.2 -3.6 -3.9 -1.0 -3.6 -1.8 -2.3 -1.3 -1.5 .1 .0 -.5 .0 .6
.6 .3 .4 .0 -.2 -.7 -.1 -1.1 .1 1.1 -.1 -1.3 .0 .5 .6 1.3 1.8 -.2 -1.2 .1 .5 -.8 -2.7 -.5 -1.3 .2 1.8 -.1 -.2 -.5 .9 2.1 1.7 1.9 .9 .6
1.2 1.8 .3 .7 1.3 .9 .3 1.0 .9 1.3 .7 .1 .6 .7 1.1 1.4 1.6 .9 1.4 2.1 1.6 .8 .5 .4 .9 .8 .9 .1 .4 1.1 .2 1.3 1.3 1.2 1.3 1.4
2.2 2.5 2.1 2.0 1.5 1.3 1.1 1.1 .7 1.1 .5 1.8 1.7 1.5 .1 .7 1.3 .9 .9 .7 .8 .9 .7 .8 1.5 1.7 2.3 .2 -.1 -.4 .3 .8 .9 1.7 2.0 2.2
1.1 1.4 2.4 2.3 2.2 2.5 .5 1.2 2.2 1.8 1.3 1.3 1.6 1.7 .7 1.4 2.0 5.2 .8 .4 1.3 1.6 1.3 .7 .7 1.0 2.2 1.2 .2 .9 .9 1.2 1.2 .8 1.5 1.2
.5 .8 -.9 -.3 -.7 .2 -.9 -.8 -.6 -1.0 .1 .4 .5 .9 .8 .9 1.0 .9 .5 .2 1.2 .8 -.2 .2 2.0 2.9 1.4 1.2 1.2 1.5 .5 .5 1.0 1.2 .4 .0
.9 .7 .7 -.2 -.1 -.3 .4 -.3 .2 -.4 -.3 .8 .3 .7 .2 -.2 .4 .4 -.1 -.4 -1.7 .5 .1 -.6 -.3 .3 -1.3 -2.1 -4.8 -3.2 -4.2 -2.2 -1.1 -.4 -1.3 -.7
.6 1.7 1.6 .0 .8 .7 .6 .4 .6 .4 .8 -1.5 -.5 .8 -.2 -.3 -.6 -.6 -.2 .1 -.7 -1.2 -.5 -.2 -.2 -.5 -.4 -.9 -.7 .3 -1.8 -2.3 -.7 .0 -.5 -.3
-.2 .4 1.1 1.5 .8 .3 .1 -.1 -.4 -.4 -1.2 .8 .6 -1.9 -1.5 -1.0 -.6 .1 -1.1 -1.6 -2.0 -1.8 -2.0 -1.3 -.9 -1.6 -.6 -2.7 -1.1 -.7 -.9 -1.1 -1.5 -1.2 -.8 -2.1
-8.1 -5.7 -2.0 -.9 -1.6 -2.0 -2.8 -2.0 -2.6 -2.4 -3.6 -3.5 -2.9 -3.8

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
OCTOBER 2000
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


6 6 6 5 6 5
8 7 5 6 6 5 5 5 5 5 5 6 6 7 9 10 12 9 9 6 6 7 8 7 6 6 7 8 14 12 10
8 7 6 6 5 5 5 6 5 6 6 6 7 7 8 8 7 7 7 5 6 6 6 7 8 7 7 8 8 9 10 10 10 10 8
7 6 5 5 5 5 6 6 5 5 7 6 6 6 5 5 6 6 7 7 8 6 8 8 7 9 7 7 8 7 8 7 8 8 7
7 6 5 6 5 5 5 5 5 5 6 6 5 6 6 7 7 8 7 6 5 6 8 5 5 6 6 5 5 6 7 7 7 7 6 7
7 7 6 6 6 5 5 5 5 5 6 6 5 6 6 6 6 6 5 7 6 4 4 5 5 5 6 5 5 6 5 6 6 6 7 7
6 7 6 6 6 6 6 5 5 5 6 6 5 7 6 6 6 5 5 5 6 5 5 5 7 6 7 6 6 6 6 5 5 5 6 6
6 6 6 8 8 8 6 5 7 6 6 6 5 6 6 6 8 11 5 5 5 5 5 5 5 5 6 6 5 5 5 5 5 5 5 6
7 7 6 5 5 5 6 5 5 5 6 5 5 6 5 6 6 6 8 7 6 6 6 6 6 7 6 6 6 5 8 7 6 7 8 7
7 6 6 6 6 5 5 5 5 5 5 7 8 7 7 6 7 6 6 6 8 7 6 6 7 7 8 10 9 9 11 9 9 9 8 7
6 7 7 7 6 6 6 5 5 5 5 7 8 10 10 8 7 8 6 6 7 8 7 6 7 7 6 7 6 8 10 8 7 8 8 7
6 5 5 5 5 6 5 5 6 6 6 5 6 9 9 8 8 7 7 8 8 7 8 8 8 7 7 8 7 8 8 7 6 6 7 9
14 12 11 10 8 8 10 9 9 9 9 10 9 9

MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH: OCTOBER 2000

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from NOAA-15.
Standard of comparison	:Background field from UKMO global model.
Selection Criteria	:All soundings.
Data Extracted	:Sounding channels (and approximate weighting function peaks, hPa) HIRS8 (Surface) HIRS15 (700) HIRS11 (500-700) HIRS4 (400) AMSUA5 (700) AMSUA7 (300) AMSUA9 (100)
	:Mean and standard deviation observation-minus-background brightness temperature differences

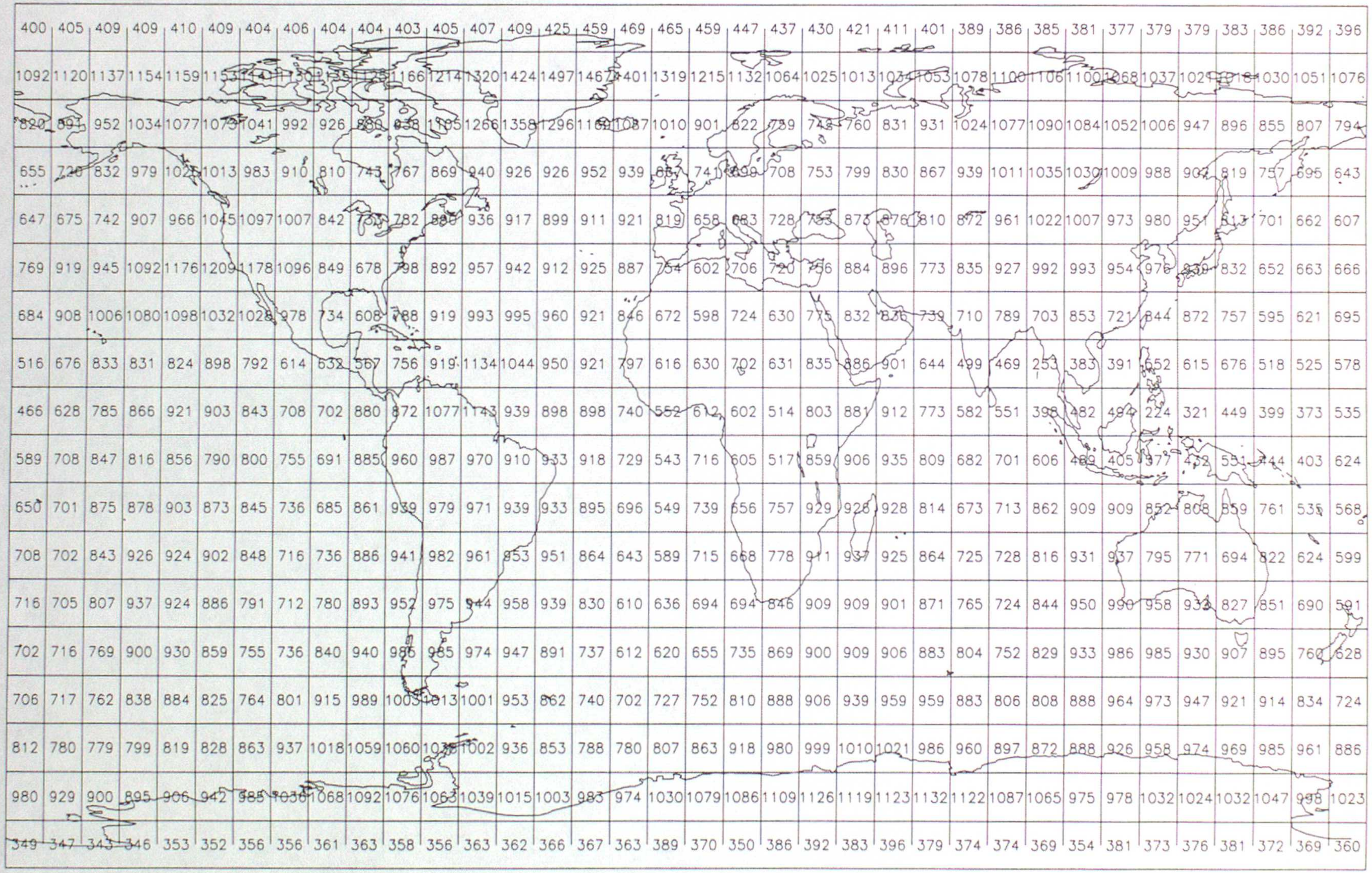
ATOVS : MEAN DAILY NUMBER OF OBSERVATIONS

FIGURE 25

OCTOBER 2000

NOAA-15, USING ALL OBSERVATIONS

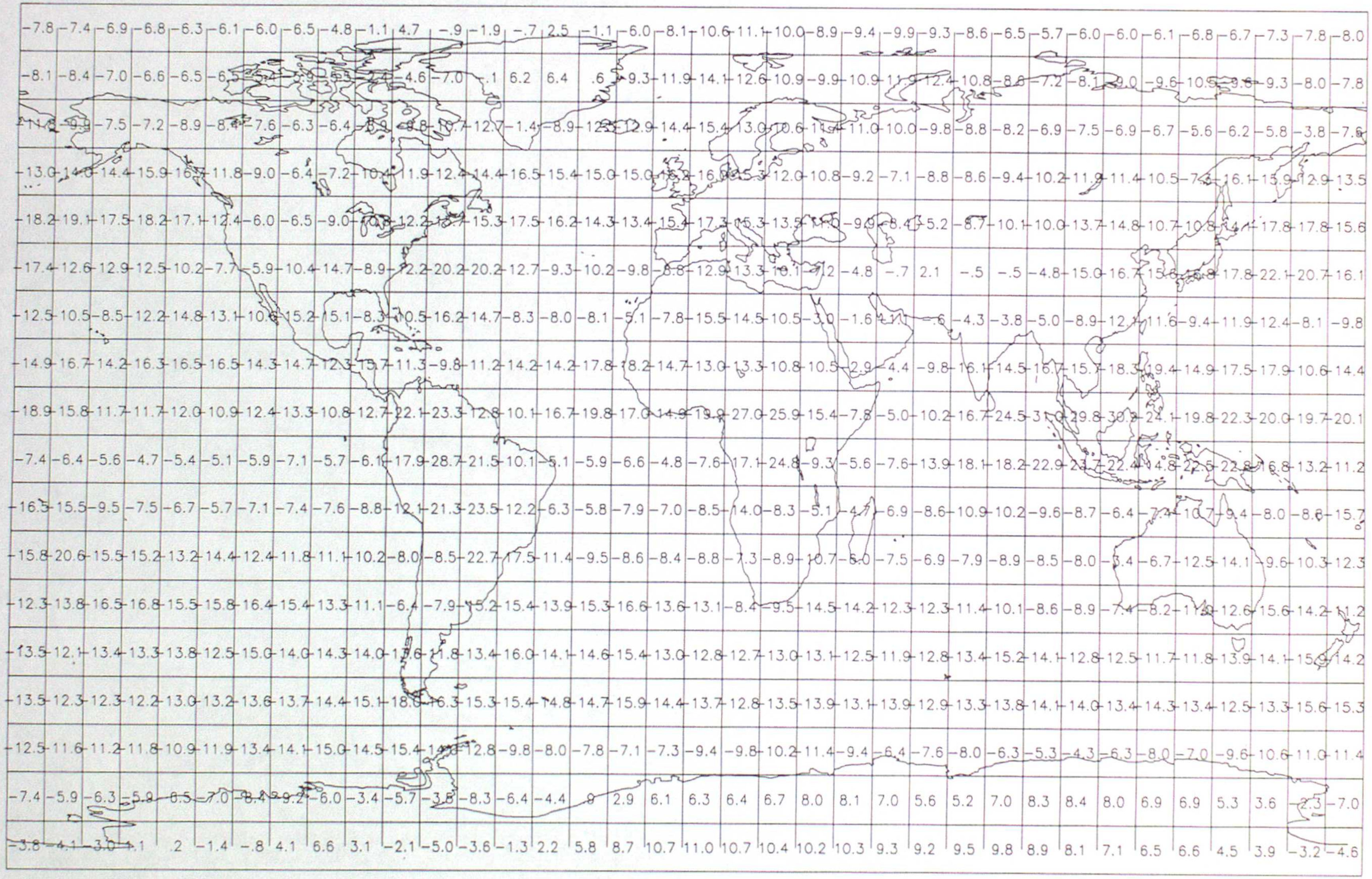
GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 522809



400	405	409	409	410	409	404	406	404	404	403	405	407	409	425	459	469	465	459	447	437	430	421	411	401	389	386	385	381	377	379	379	383	386	392	396
1092	1120	1137	1154	1159	1153	1141	1130	1135	1125	1166	1214	1320	1424	1497	1467	1401	1319	1215	1132	1064	1025	1013	1034	1053	1078	1100	1106	1100	1068	1037	1029	1018	1030	1051	1076
820	891	952	1034	1077	1073	1041	992	926	880	838	1105	1266	1358	1296	1169	1087	1010	901	822	759	743	760	831	931	1024	1077	1090	1084	1052	1006	947	896	855	807	794
655	720	832	979	1025	1013	983	910	810	743	767	869	940	926	926	952	939	857	741	699	708	753	799	830	867	939	1011	1035	1030	1009	988	902	819	757	695	643
647	675	742	907	966	1045	1097	1007	842	733	782	880	936	917	899	911	921	819	658	683	728	753	873	876	810	872	961	1022	1007	973	980	951	813	701	662	607
769	919	945	1092	1176	1209	1178	1096	849	678	798	892	957	942	912	925	887	754	602	706	720	756	884	896	773	835	927	992	993	954	976	839	832	652	663	666
684	908	1006	1080	1098	1032	1028	978	734	608	788	919	993	995	960	921	846	672	598	724	630	775	832	836	739	710	789	703	853	721	844	872	757	595	621	695
516	676	833	831	824	898	792	614	632	567	756	919	1134	1044	950	921	797	616	630	702	631	835	886	901	644	499	469	253	383	391	652	615	676	518	525	578
466	628	785	866	921	903	843	708	702	880	872	1077	1143	939	898	898	740	552	612	602	514	803	881	912	773	582	551	398	482	494	224	321	449	399	373	535
589	708	847	816	856	790	800	755	691	885	960	987	970	910	933	918	729	543	716	605	517	859	906	935	809	682	701	606	489	405	377	432	551	344	403	624
650	701	875	878	903	873	845	736	685	861	939	979	971	939	933	895	696	549	739	656	757	929	928	928	814	673	713	862	909	909	852	808	859	761	535	568
708	702	843	926	924	902	848	716	736	886	941	982	961	853	951	864	643	589	715	668	778	911	937	925	864	725	728	816	931	937	795	771	694	822	624	599
716	705	807	937	924	886	791	712	780	893	952	975	944	958	939	830	610	636	694	694	846	909	909	901	871	765	724	844	950	990	958	933	827	851	690	591
702	716	769	900	930	859	755	736	840	940	986	985	974	947	891	737	612	620	655	735	869	900	909	906	883	804	752	829	933	986	985	930	907	895	760	628
706	717	762	838	884	825	764	801	915	989	1003	1013	1001	953	862	740	702	727	752	810	888	906	939	959	959	883	806	808	888	964	973	947	921	914	834	724
812	780	779	799	819	828	863	937	1018	1059	1060	1038	1002	936	853	788	780	807	863	918	980	999	1010	1021	986	960	897	872	888	926	958	974	969	985	961	886
980	929	900	895	906	942	985	1036	1068	1092	1076	1063	1039	1015	1003	983	974	1030	1079	1086	1109	1126	1119	1123	1132	1122	1087	1065	975	978	1032	1024	1032	1047	998	1023
349	347	343	346	353	352	356	356	361	363	358	356	363	362	366	367	363	389	370	350	386	392	383	396	379	374	374	369	354	381	373	376	381	372	369	360

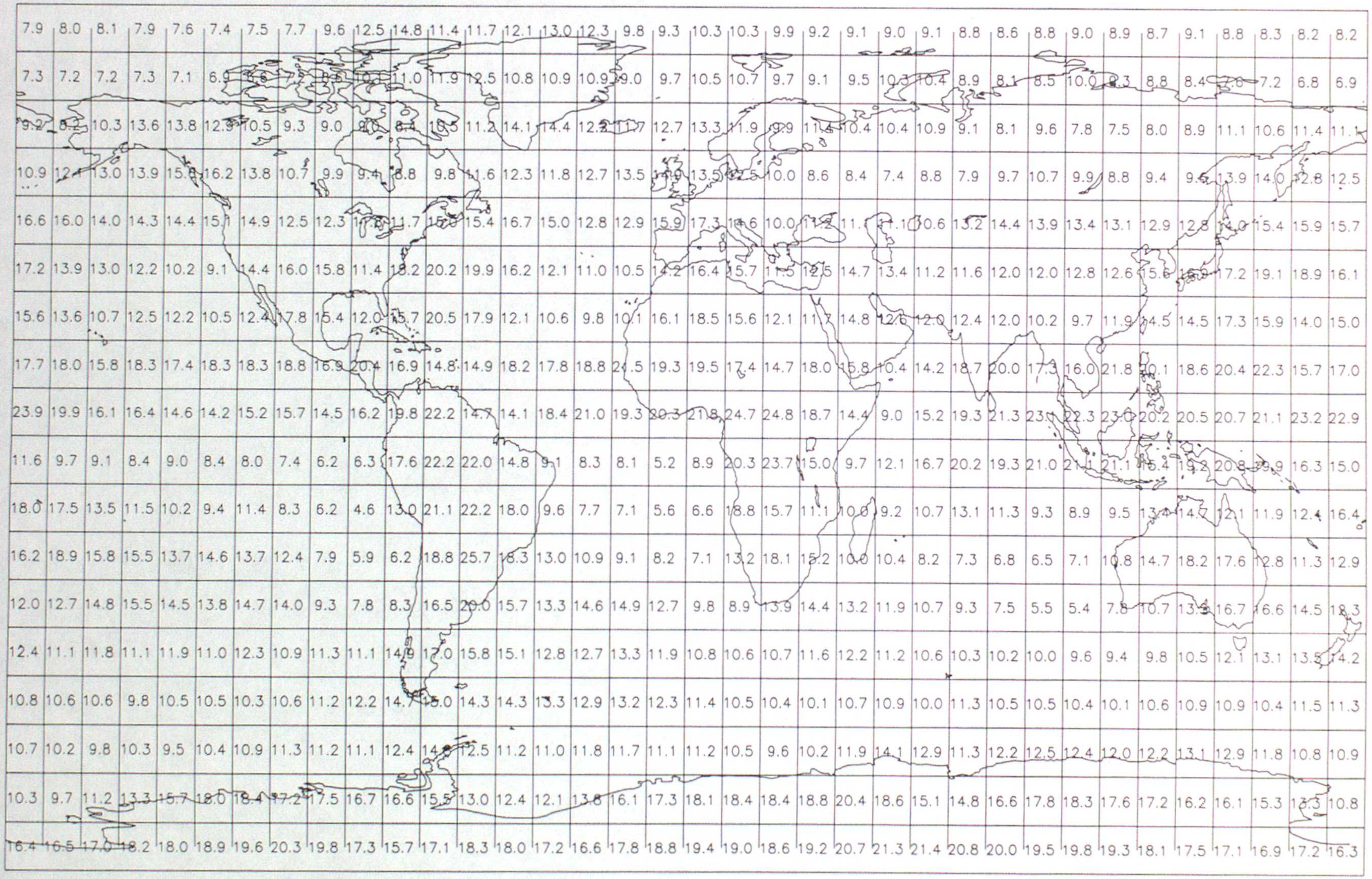
ATOVS : MEAN O-B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)
OCTOBER 2000 : HIRS8 channel (Surface)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 26


-7.8 -7.4 -6.9 -6.8 -6.3 -6.1 -6.0 -6.5 -4.8 -1.1 4.7 -.9 -1.9 -.7 2.5 -1.1 -6.0 -8.1 -10.6 -11.1 -10.0 -8.9 -9.4 -9.9 -9.3 -8.6 -6.5 -5.7 -6.0 -6.0 -6.1 -6.8 -6.7 -7.3 -7.8 -8.0
-8.1 -8.4 -7.0 -6.6 -6.5 -6.5 -5.4 -5.9 -5.5 -2.4 -4.6 -7.0 -.1 6.2 6.4 .6 -9.3 -11.9 -14.1 -12.6 -10.9 -9.9 -10.9 -11.9 -12.4 -10.8 -8.8 -7.2 -8.1 -9.0 -9.6 -10.5 -9.6 -9.3 -8.0 -7.8
-11.8 -9.9 -7.5 -7.2 -8.9 -8.4 -7.6 -6.3 -6.4 -5.9 -8.8 -10.7 -12.7 -1.4 -8.9 -12.5 -12.9 -14.4 -15.4 -13.0 -10.6 -11.4 -11.0 -10.0 -9.8 -8.8 -8.2 -6.9 -7.5 -6.9 -6.7 -5.6 -6.2 -5.8 -3.8 -7.6
-13.0 -14.0 -14.4 -15.9 -16.7 -11.8 -9.0 -6.4 -7.2 -10.4 -11.9 -12.4 -14.4 -16.5 -15.4 -15.0 -15.0 -16.2 -16.0 -15.3 -12.0 -10.8 -9.2 -7.1 -8.8 -8.6 -9.4 -10.2 -11.9 -11.4 -10.5 -7.3 -16.1 -15.9 -12.9 -13.5
-18.2 -19.1 -17.5 -18.2 -17.1 -12.4 -6.0 -6.5 -9.0 -10.8 -12.2 -13.7 -15.3 -17.5 -16.2 -14.3 -13.4 -15.4 -17.3 -15.3 -13.5 -11.0 -9.9 -8.4 -5.2 -8.7 -10.1 -10.0 -13.7 -14.8 -10.7 -10.8 -14.1 -17.8 -17.8 -15.6
-17.4 -12.6 -12.9 -12.5 -10.2 -7.7 -5.9 -10.4 -14.7 -8.9 -12.2 -20.2 -20.2 -12.7 -9.3 -10.2 -9.8 -8.8 -12.9 -13.3 -10.1 -7.2 -4.8 -.7 2.1 -.5 -.5 -4.8 -15.0 -16.7 -15.6 -15.8 -17.8 -22.1 -20.7 -16.1
-12.5 -10.5 -8.5 -12.2 -14.8 -13.1 -10.6 -15.2 -15.1 -8.3 -10.5 -16.2 -14.7 -8.3 -8.0 -8.1 -5.1 -7.8 -15.5 -14.5 -10.5 -3.0 -1.6 -1.1 -.6 -4.3 -3.8 -5.0 -8.9 -12.1 -11.6 -9.4 -11.9 -12.4 -8.1 -9.8
-14.9 -16.7 -14.2 -16.3 -16.5 -16.5 -14.3 -14.7 -12.3 -15.7 -11.3 -9.8 -11.2 -14.2 -14.2 -17.8 -18.2 -14.7 -13.0 -13.3 -10.8 -10.5 -2.9 -4.4 -9.8 -16.1 -14.5 -16.7 -15.7 -18.3 -19.4 -14.9 -17.5 -17.9 -10.6 -14.4
-18.9 -15.8 -11.7 -11.7 -12.0 -10.9 -12.4 -13.3 -10.8 -12.7 -22.1 -23.3 -12.8 -10.1 -16.7 -19.8 -17.0 -14.9 -19.9 -27.0 -25.9 -15.4 -7.8 -5.0 -10.2 -16.7 -24.5 -31.0 -29.8 -30.3 -24.1 -19.8 -22.3 -20.0 -19.7 -20.1
-7.4 -6.4 -5.6 -4.7 -5.4 -5.1 -5.9 -7.1 -5.7 -6.1 -17.9 -28.7 -21.5 -10.1 -5.1 -5.9 -6.6 -4.8 -7.6 -17.1 -24.8 -9.3 -5.6 -7.6 -13.9 -18.1 -18.2 -22.9 -23.7 -22.4 -14.8 -22.5 -22.8 -16.8 -13.2 -11.2
-16.5 -15.5 -9.5 -7.5 -6.7 -5.7 -7.1 -7.4 -7.6 -8.8 -12.1 -21.3 -23.5 -12.2 -6.3 -5.8 -7.9 -7.0 -8.5 -14.0 -8.3 -5.1 -4.7 -6.9 -8.6 -10.9 -10.2 -9.6 -8.7 -6.4 -7.4 -10.7 -9.4 -8.0 -8.6 -15.7
-15.8 -20.6 -15.5 -15.2 -13.2 -14.4 -12.4 -11.8 -11.1 -10.2 -8.0 -8.5 -22.7 -17.5 -11.4 -9.5 -8.6 -8.4 -8.8 -7.3 -8.9 -10.7 -6.0 -7.5 -6.9 -7.9 -8.9 -8.5 -8.0 -3.4 -6.7 -12.5 -14.1 -9.6 -10.3 -12.3
-12.3 -13.8 -16.5 -16.8 -15.5 -15.8 -16.4 -15.4 -13.3 -11.1 -6.4 -7.9 -15.2 -15.4 -13.9 -15.3 -16.6 -13.6 -13.1 -8.4 -9.5 -14.5 -14.2 -12.3 -12.3 -11.4 -10.1 -8.6 -8.9 -7.4 -8.2 -11.9 -12.6 -15.6 -14.2 -11.2
-13.5 -12.1 -13.4 -13.3 -13.8 -12.5 -15.0 -14.0 -14.3 -14.0 -17.6 -11.8 -13.4 -16.0 -14.1 -14.6 -15.4 -13.0 -12.8 -12.7 -13.0 -13.1 -12.5 -11.9 -12.8 -13.4 -15.2 -14.1 -12.8 -12.5 -11.7 -11.8 -13.9 -14.1 -15.9 -14.2
-13.5 -12.3 -12.3 -12.2 -13.0 -13.2 -13.6 -13.7 -14.4 -15.1 -18.6 -16.3 -15.3 -15.4 -14.8 -14.7 -15.9 -14.4 -13.7 -12.8 -13.5 -13.9 -13.1 -13.9 -12.9 -13.3 -13.8 -14.1 -14.0 -13.4 -14.3 -13.4 -12.5 -13.3 -15.6 -15.3
-12.5 -11.6 -11.2 -11.8 -10.9 -11.9 -13.4 -14.1 -15.0 -14.5 -15.4 -14.0 -12.8 -9.8 -8.0 -7.8 -7.1 -7.3 -9.4 -9.8 -10.2 -11.4 -9.4 -6.4 -7.6 -8.0 -6.3 -5.3 -4.3 -6.3 -8.0 -7.0 -9.6 -10.6 -11.0 -11.4
-7.4 -5.9 -6.3 -5.9 -6.5 -7.0 -8.4 -9.2 -6.0 -3.4 -5.7 -3.8 -8.3 -6.4 -4.4 .9 2.9 6.1 6.3 6.4 6.7 8.0 8.1 7.0 5.6 5.2 7.0 8.3 8.4 8.0 6.9 6.9 5.3 3.6 -2.3 -7.0
-3.8 -4.1 -3.0 -1.1 .2 -1.4 -.8 4.1 6.6 3.1 -2.1 -5.0 -3.6 -1.3 2.2 5.8 8.7 10.7 11.0 10.7 10.4 10.2 10.3 9.3 9.2 9.5 9.8 8.9 8.1 7.1 6.5 6.6 4.5 3.9 -3.2 -4.6

ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
OCTOBER 2000 : HIRS8 channel (Surface)
NOAA-15, USING ALL OBSERVATIONS

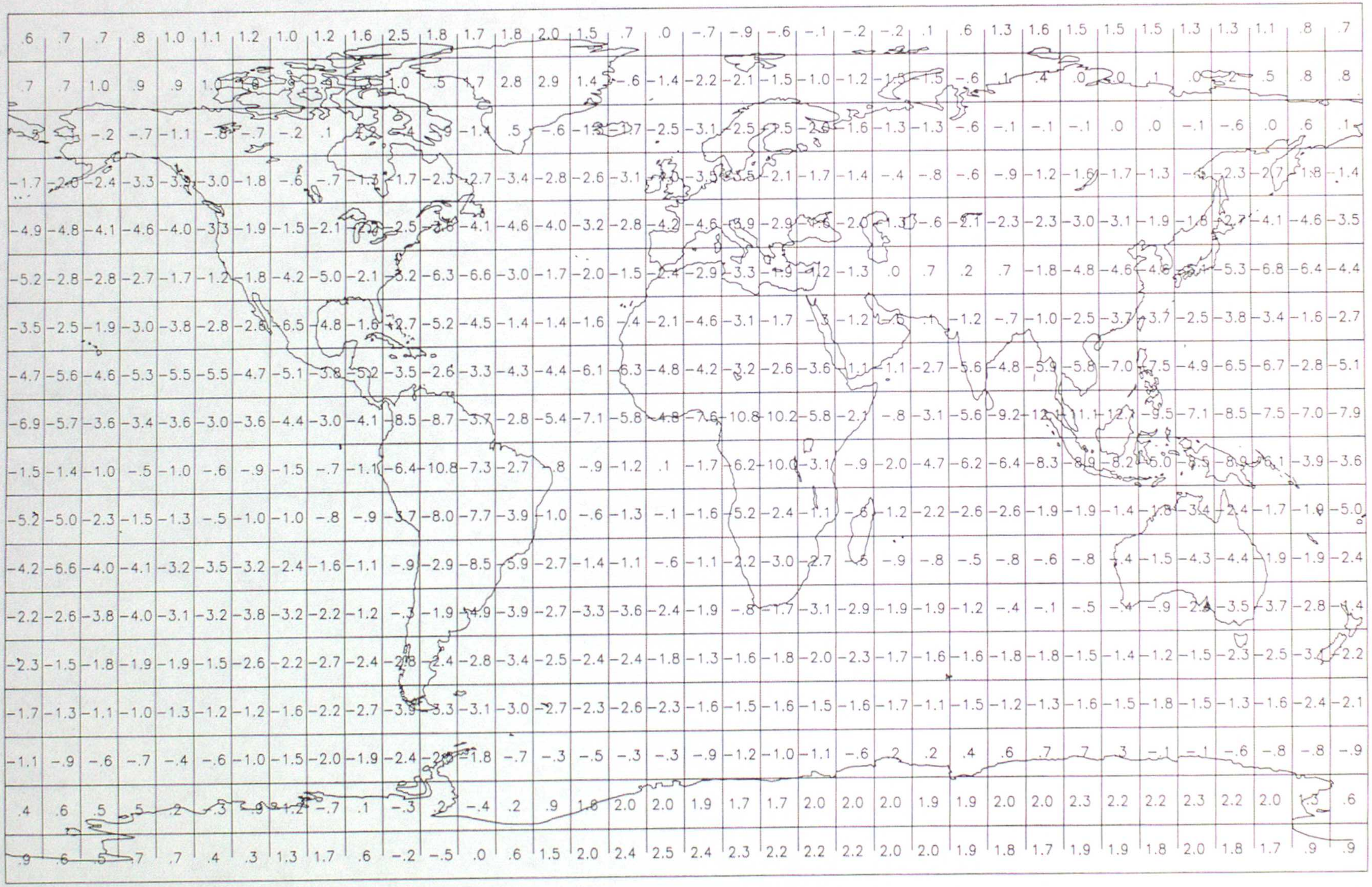
FIGURE 27



7.9	8.0	8.1	7.9	7.6	7.4	7.5	7.7	9.6	12.5	14.8	11.4	11.7	12.1	13.0	12.3	9.8	9.3	10.3	10.3	9.9	9.2	9.1	9.0	9.1	8.8	8.6	8.8	9.0	8.9	8.7	9.1	8.8	8.3	8.2	8.2
7.3	7.2	7.2	7.3	7.1	6.9	6.6	[illegible]	[illegible]	[illegible]	11.0	11.9	12.5	10.8	10.9	10.9	9.0	9.7	10.5	10.7	9.7	9.1	9.5	10.3	10.4	8.9	8.1	8.5	10.0	8.3	8.8	8.4	7.6	7.2	6.8	6.9
9.2	8.2	10.3	13.6	13.8	12.9	10.5	9.3	9.0	9.0	8.4	10.5	11.2	14.1	14.4	12.3	11.7	12.7	13.3	11.9	9.9	11.4	10.4	10.4	10.9	9.1	8.1	9.6	7.8	7.5	8.0	8.9	11.1	10.6	11.4	11.1
10.9	12.4	13.0	13.9	15.8	16.2	13.8	10.7	9.9	9.4	8.8	9.8	11.6	12.3	11.8	12.7	13.5	14.9	13.5	12.5	10.0	8.6	8.4	7.4	8.8	7.9	9.7	10.7	9.9	8.8	9.4	9.6	13.9	14.0	12.8	12.5
16.6	16.0	14.0	14.3	14.4	15.1	14.9	12.5	12.3	11.8	11.7	15.0	15.4	16.7	15.0	12.8	12.9	15.9	17.3	14.6	10.0	11.2	11.1	11.1	10.6	13.2	14.4	13.9	13.4	13.1	12.9	12.8	14.0	15.4	15.9	15.7
17.2	13.9	13.0	12.2	10.2	9.1	14.4	16.0	15.8	11.4	18.2	20.2	19.9	16.2	12.1	11.0	10.5	14.2	16.4	15.7	11.5	12.5	14.7	13.4	11.2	11.6	12.0	12.0	12.8	12.6	15.6	[illegible]	17.2	19.1	18.9	16.1
15.6	13.6	10.7	12.5	12.2	10.5	12.4	17.8	15.4	12.0	15.7	20.5	17.9	12.1	10.6	9.8	10.1	16.1	18.5	15.6	12.1	11.7	14.8	12.6	12.0	12.4	12.0	10.2	9.7	11.9	14.5	14.5	17.3	15.9	14.0	15.0
17.7	18.0	15.8	18.3	17.4	18.3	18.3	18.8	16.9	20.4	16.9	14.8	14.9	18.2	17.8	18.8	21.5	19.3	19.5	17.4	14.7	18.0	15.8	10.4	14.2	18.7	20.0	17.3	16.0	21.8	20.1	18.6	20.4	22.3	15.7	17.0
23.9	19.9	16.1	16.4	14.6	14.2	15.2	15.7	14.5	16.2	19.8	22.2	14.7	14.1	18.4	21.0	19.3	20.3	21.8	24.7	24.8	18.7	14.4	9.0	15.2	19.3	21.3	23.1	22.3	23.0	20.2	20.5	20.7	21.1	23.2	22.9
11.6	9.7	9.1	8.4	9.0	8.4	8.0	7.4	6.2	6.3	17.6	22.2	22.0	14.8	9.1	8.3	8.1	5.2	8.9	20.3	23.7	15.0	9.7	12.1	16.7	20.2	19.3	21.0	21.1	21.1	15.4	19.2	20.8	19.9	16.3	15.0
18.0	17.5	13.5	11.5	10.2	9.4	11.4	8.3	6.2	4.6	13.0	21.1	22.2	18.0	9.6	7.7	7.1	5.6	6.6	18.8	15.7	11.1	10.0	9.2	10.7	13.1	11.3	9.3	8.9	9.5	13.4	14.7	12.1	11.9	12.4	16.4
16.2	18.9	15.8	15.5	13.7	14.6	13.7	12.4	7.9	5.9	6.2	18.8	25.7	18.3	13.0	10.9	9.1	8.2	7.1	13.2	18.1	15.2	10.0	10.4	8.2	7.3	6.8	6.5	7.1	10.8	14.7	18.2	17.6	12.8	11.3	12.9
12.0	12.7	14.8	15.5	14.5	13.8	14.7	14.0	9.3	7.8	8.3	16.5	20.0	15.7	13.3	14.6	14.9	12.7	9.8	8.9	13.9	14.4	13.2	11.9	10.7	9.3	7.5	5.5	5.4	7.8	10.7	13.5	16.7	16.6	14.5	18.3
12.4	11.1	11.8	11.1	11.9	11.0	12.3	10.9	11.3	11.1	14.9	17.0	15.8	15.1	12.8	12.7	13.3	11.9	10.8	10.6	10.7	11.6	12.2	11.2	10.6	10.3	10.2	10.0	9.6	9.4	9.8	10.5	12.1	13.1	13.5	14.2
10.8	10.6	10.6	9.8	10.5	10.5	10.3	10.6	11.2	12.2	14.7	15.0	14.3	14.3	13.3	12.9	13.2	12.3	11.4	10.5	10.4	10.1	10.7	10.9	10.0	11.3	10.5	10.5	10.4	10.1	10.6	10.9	10.9	10.4	11.5	11.3
10.7	10.2	9.8	10.3	9.5	10.4	10.9	11.3	11.2	11.1	12.4	[illegible]	12.5	11.2	11.0	11.8	11.7	11.1	11.2	10.5	9.6	10.2	11.9	14.1	12.9	11.3	12.2	12.5	12.4	12.0	12.2	13.1	12.9	11.8	10.8	10.9
10.3	9.7	11.2	13.3	15.7	18.0	18.4	17.2	17.5	16.7	16.6	15.5	13.0	12.4	12.1	13.8	16.1	17.3	18.1	18.4	18.4	18.8	20.4	18.6	15.1	14.8	16.6	17.8	18.3	17.6	17.2	16.2	16.1	15.3	13.3	10.8
16.4	16.5	17.0	18.2	18.0	18.9	19.6	20.3	19.8	17.3	15.7	17.1	18.3	18.0	17.2	16.6	17.8	18.8	19.4	19.0	18.6	19.2	20.7	21.3	21.4	20.8	20.0	19.5	19.8	19.3	18.1	17.5	17.1	16.9	17.2	16.3

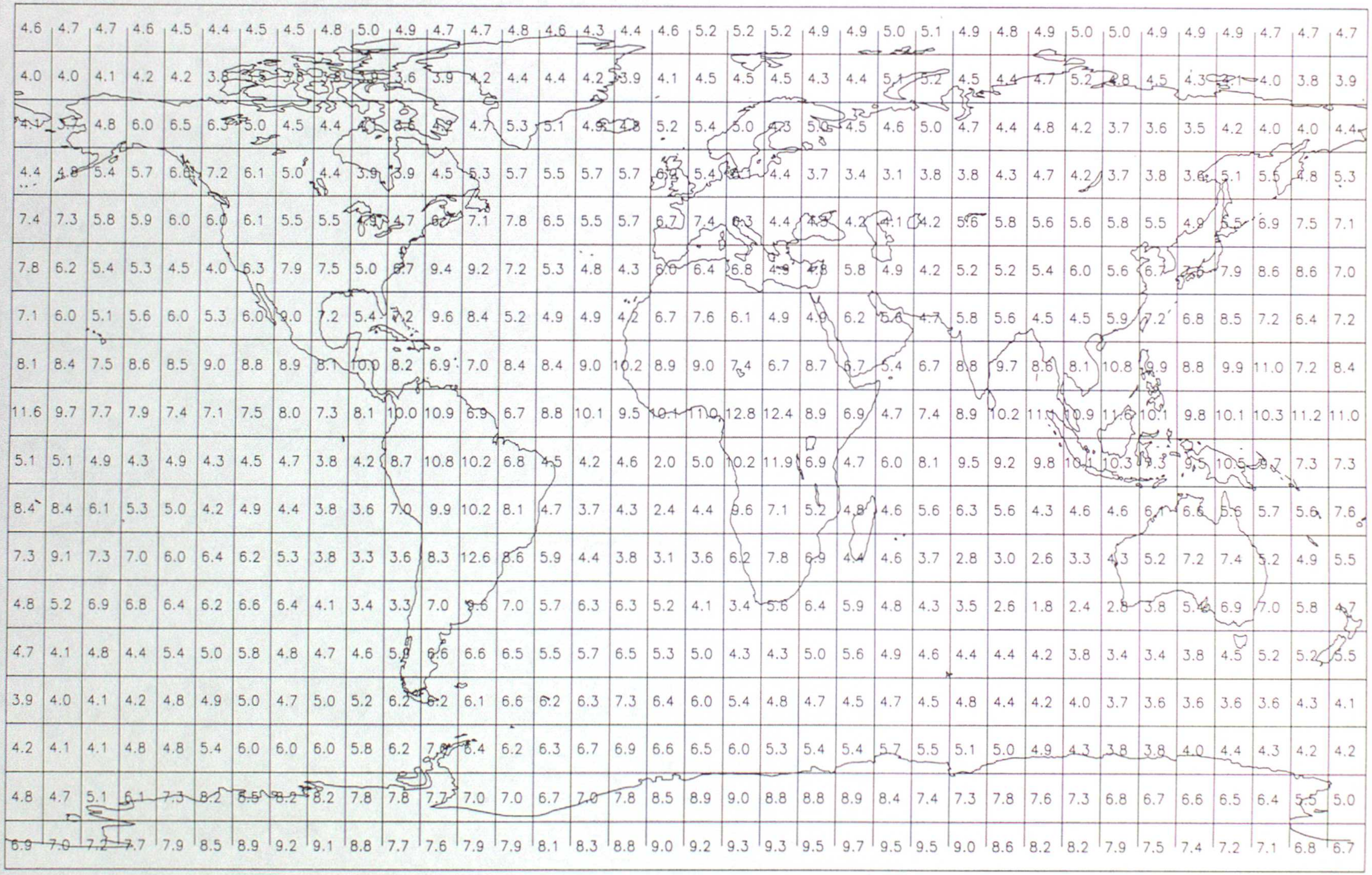
ATOVS : MEAN O-B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)
OCTOBER 2000 : HIRS15 Channel (700 hPa)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 28


.6 .7 .7 .8 1.0 1.1 1.2 1.0 1.2 1.6 2.5 1.8 1.7 1.8 2.0 1.5 .7 .0 -.7 -.9 -.6 -.1 -.2 -.2 .1 .6 1.3 1.6 1.5 1.5 1.5 1.3 1.3 1.1 .8 .7
.7 .7 1.0 .9 .9 1.0 .8 .9 .9 1.3 1.0 .5 1.7 2.8 2.9 1.4 -.6 -1.4 -2.2 -2.1 -1.5 -1.0 -1.2 -1.5 -1.5 -.6 .1 .4 .0 .0 .1 .0 .2 .5 .8 .8
-.5 -.1 -.2 -.7 -1.1 -.8 -.7 -.2 .1 -.2 .4 .9 -1.4 .5 -.6 -1.3 -1.7 -2.5 -3.1 -2.5 -2.5 -2.6 -1.6 -1.3 -1.3 -.6 -.1 -.1 -.1 .0 .0 -.1 -.6 .0 .6 .1
-1.7 -2.0 -2.4 -3.3 -3.9 -3.0 -1.8 -.6 -.7 -1.3 -1.7 -2.3 -2.7 -3.4 -2.8 -2.6 -3.1 -4.0 -3.5 -3.5 -2.1 -1.7 -1.4 -.4 -.8 -.6 -.9 -1.2 -1.6 -1.7 -1.3 -.9 -2.3 -2.7 -1.8 -1.4
-4.9 -4.8 -4.1 -4.6 -4.0 -3.3 -1.9 -1.5 -2.1 -2.2 -2.5 -3.6 -4.1 -4.6 -4.0 -3.2 -2.8 -4.2 -4.6 -3.9 -2.9 -1.6 -2.0 -1.3 -.6 -2.1 -2.3 -2.3 -3.0 -3.1 -1.9 -1.8 -2.7 -4.1 -4.6 -3.5
-5.2 -2.8 -2.8 -2.7 -1.7 -1.2 -1.8 -4.2 -5.0 -2.1 -3.2 -6.3 -6.6 -3.0 -1.7 -2.0 -1.5 -2.4 -2.9 -3.3 -1.9 -1.2 -1.3 .0 .7 .2 .7 -1.8 -4.8 -4.6 -4.6 -5.1 -5.3 -6.8 -6.4 -4.4
-3.5 -2.5 -1.9 -3.0 -3.8 -2.8 -2.6 -6.5 -4.8 -1.6 -2.7 -5.2 -4.5 -1.4 -1.4 -1.6 -.4 -2.1 -4.6 -3.1 -1.7 -.3 -1.2 -.5 .1 -1.2 -.7 -1.0 -2.5 -3.7 -3.7 -2.5 -3.8 -3.4 -1.6 -2.7
-4.7 -5.6 -4.6 -5.3 -5.5 -5.5 -4.7 -5.1 -3.8 -5.2 -3.5 -2.6 -3.3 -4.3 -4.4 -6.1 -6.3 -4.8 -4.2 -3.2 -2.6 -3.6 -1.1 -1.1 -2.7 -5.6 -4.8 -5.9 -5.8 -7.0 -7.5 -4.9 -6.5 -6.7 -2.8 -5.1
-6.9 -5.7 -3.6 -3.4 -3.6 -3.0 -3.6 -4.4 -3.0 -4.1 -8.5 -8.7 -3.7 -2.8 -5.4 -7.1 -5.8 -4.8 -7.6 -10.8 -10.2 -5.8 -2.1 -.8 -3.1 -5.6 -9.2 -12.1 -11.1 -12.1 -9.5 -7.1 -8.5 -7.5 -7.0 -7.9
-1.5 -1.4 -1.0 -.5 -1.0 -.6 -.9 -1.5 -.7 -1.1 -6.4 -10.8 -7.3 -2.7 -.8 -.9 -1.2 .1 -1.7 -6.2 -10.0 -3.1 -.9 -2.0 -4.7 -6.2 -6.4 -8.3 -8.9 -8.2 -5.0 -8.5 -8.9 -6.1 -3.9 -3.6
-5.2 -5.0 -2.3 -1.5 -1.3 -.5 -1.0 -1.0 -.8 -.9 -3.7 -8.0 -7.7 -3.9 -1.0 -.6 -1.3 -.1 -1.6 -5.2 -2.4 -1.1 -.6 -1.2 -2.2 -2.6 -2.6 -1.9 -1.9 -1.4 -1.8 -3.4 -2.4 -1.7 -1.0 -5.0
-4.2 -6.6 -4.0 -4.1 -3.2 -3.5 -3.2 -2.4 -1.6 -1.1 -.9 -2.9 -8.5 -5.9 -2.7 -1.4 -1.1 -.6 -1.1 -2.2 -3.0 -2.7 -.5 -.9 -.8 -.5 -.8 -.6 -.8 -.4 -1.5 -4.3 -4.4 -1.9 -1.9 -2.4
-2.2 -2.6 -3.8 -4.0 -3.1 -3.2 -3.8 -3.2 -2.2 -1.2 -.3 -1.9 -4.9 -3.9 -2.7 -3.3 -3.6 -2.4 -1.9 -.8 -1.7 -3.1 -2.9 -1.9 -1.9 -1.2 -.4 -.1 -.5 -.4 -.9 -2.3 -3.5 -3.7 -2.8 -1.4
-2.3 -1.5 -1.8 -1.9 -1.9 -1.5 -2.6 -2.2 -2.7 -2.4 -2.8 -2.4 -2.8 -3.4 -2.5 -2.4 -2.4 -1.8 -1.3 -1.6 -1.8 -2.0 -2.3 -1.7 -1.6 -1.6 -1.8 -1.8 -1.5 -1.4 -1.2 -1.5 -2.3 -2.5 -3.4 -2.2
-1.7 -1.3 -1.1 -1.0 -1.3 -1.2 -1.2 -1.6 -2.2 -2.7 -3.9 -3.3 -3.1 -3.0 -2.7 -2.3 -2.6 -2.3 -1.6 -1.5 -1.6 -1.5 -1.6 -1.7 -1.1 -1.5 -1.2 -1.3 -1.6 -1.5 -1.8 -1.5 -1.3 -1.6 -2.4 -2.1
-1.1 -.9 -.6 -.7 -.4 -.6 -1.0 -1.5 -2.0 -1.9 -2.4 -2.5 -1.8 -.7 -.3 -.5 -.3 -.3 -.9 -1.2 -1.0 -1.1 -.6 .2 .2 .4 .6 .7 .7 .3 -.1 -.1 -.6 -.8 -.8 -.9
.4 .6 .5 .5 .2 .3 .9 1.2 -.7 .1 -.3 .2 -.4 .2 .9 1.8 2.0 2.0 1.9 1.7 1.7 2.0 2.0 2.0 1.9 1.9 2.0 2.0 2.3 2.2 2.2 2.3 2.2 2.0 1.3 .6
.9 .6 .5 .7 .7 .4 .3 1.3 1.7 .6 -.2 -.5 .0 .6 1.5 2.0 2.4 2.5 2.4 2.3 2.2 2.2 2.2 2.0 2.0 1.9 1.8 1.7 1.9 1.9 1.8 2.0 1.8 1.7 .9 .9

ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
OCTOBER 2000 : HIRS15 channel (700 hPa)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 29



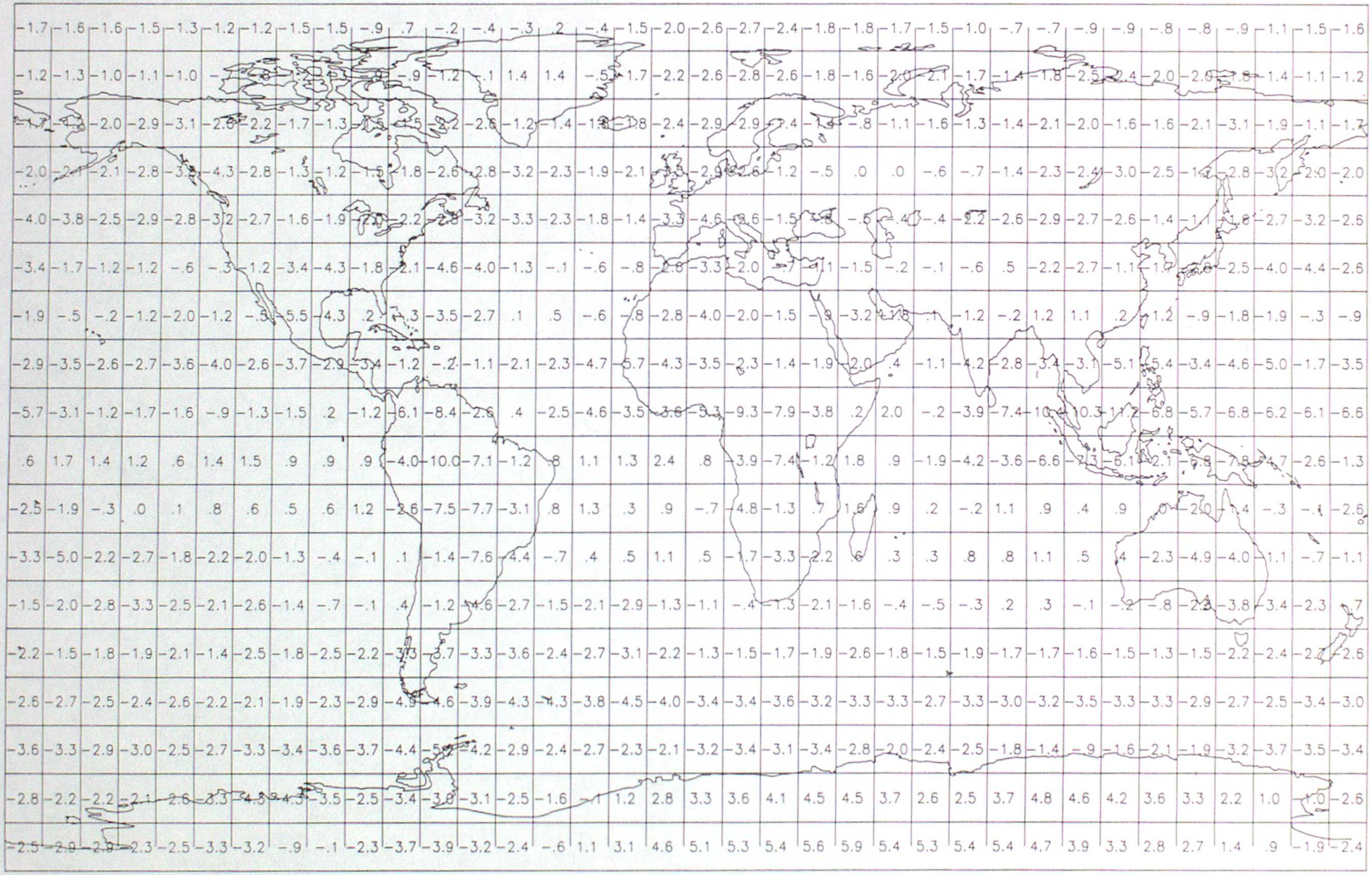
4.6	4.7	4.7	4.6	4.5	4.4	4.5	4.5	4.8	5.0	4.9	4.7	4.7	4.8	4.6	4.3	4.4	4.6	5.2	5.2	5.2	4.9	4.9	5.0	5.1	4.9	4.8	4.9	5.0	5.0	4.9	4.9	4.9	4.7	4.7	4.7
4.0	4.0	4.1	4.2	4.2	3.8	3.5	3.8	3.8	3.9	3.6	3.9	4.2	4.4	4.4	4.2	3.9	4.1	4.5	4.5	4.5	4.3	4.4	5.1	5.2	4.5	4.4	4.7	5.2	3.8	4.5	4.3	4.1	4.0	3.8	3.9
4.1	3.7	4.8	6.0	6.5	6.3	5.0	4.5	4.4	[illegible]	3.6	4.2	4.7	5.3	5.1	4.9	4.8	5.2	5.4	5.0	4.3	5.0	4.5	4.6	5.0	4.7	4.4	4.8	4.2	3.7	3.6	3.5	4.2	4.0	4.0	4.4
4.4	4.8	5.4	5.7	6.6	7.2	6.1	5.0	4.4	3.9	3.9	4.5	5.3	5.7	5.5	5.7	5.7	6.9	5.4	[illegible]	4.4	3.7	3.4	3.1	3.8	3.8	4.3	4.7	4.2	3.7	3.8	3.6	5.1	5.5	4.8	5.3
7.4	7.3	5.8	5.9	6.0	6.0	6.1	5.5	5.5	4.9	4.7	6.7	7.1	7.8	6.5	5.5	5.7	6.7	7.4	6.3	4.4	4.5	4.2	4.1	4.2	5.6	5.8	5.6	5.6	5.8	5.5	4.9	5.5	6.9	7.5	7.1
7.8	6.2	5.4	5.3	4.5	4.0	6.3	7.9	7.5	5.0	6.7	9.4	9.2	7.2	5.3	4.8	4.3	6.0	6.4	6.8	4.9	4.8	5.8	4.9	4.2	5.2	5.2	5.4	6.0	5.6	6.7	7.6	7.9	8.6	8.6	7.0
7.1	6.0	5.1	5.6	6.0	5.3	6.0	9.0	7.2	5.4	7.2	9.6	8.4	5.2	4.9	4.9	4.2	6.7	7.6	6.1	4.9	4.9	6.2	5.6	4.7	5.8	5.6	4.5	4.5	5.9	7.2	6.8	8.5	7.2	6.4	7.2
8.1	8.4	7.5	8.6	8.5	9.0	8.8	8.9	8.1	10.0	8.2	6.9	7.0	8.4	8.4	9.0	10.2	8.9	9.0	7.4	6.7	8.7	6.7	5.4	6.7	8.8	9.7	8.6	8.1	10.8	9.9	8.8	9.9	11.0	7.2	8.4
11.6	9.7	7.7	7.9	7.4	7.1	7.5	8.0	7.3	8.1	10.0	10.9	6.9	6.7	8.8	10.1	9.5	10.1	11.0	12.8	12.4	8.9	6.9	4.7	7.4	8.9	10.2	11.1	10.9	11.6	10.1	9.8	10.1	10.3	11.2	11.0
5.1	5.1	4.9	4.3	4.9	4.3	4.5	4.7	3.8	4.2	8.7	10.8	10.2	6.8	4.5	4.2	4.6	2.0	5.0	10.2	11.9	6.9	4.7	6.0	8.1	9.5	9.2	9.8	10.1	10.3	9.3	9.5	10.5	9.7	7.3	7.3
8.4	8.4	6.1	5.3	5.0	4.2	4.9	4.4	3.8	3.6	7.0	9.9	10.2	8.1	4.7	3.7	4.3	2.4	4.4	9.6	7.1	5.2	4.8	4.6	5.6	6.3	5.6	4.3	4.6	4.6	6.1	6.6	5.6	5.7	5.6	7.6
7.3	9.1	7.3	7.0	6.0	6.4	6.2	5.3	3.8	3.3	3.6	8.3	12.6	8.6	5.9	4.4	3.8	3.1	3.6	6.2	7.8	6.9	4.4	4.6	3.7	2.8	3.0	2.6	3.3	4.3	5.2	7.2	7.4	5.2	4.9	5.5
4.8	5.2	6.9	6.8	6.4	6.2	6.6	6.4	4.1	3.4	3.3	7.0	9.6	7.0	5.7	6.3	6.3	5.2	4.1	3.4	5.6	6.4	5.9	4.8	4.3	3.5	2.6	1.8	2.4	2.8	3.8	5.4	6.9	7.0	5.8	4.7
4.7	4.1	4.8	4.4	5.4	5.0	5.8	4.8	4.7	4.6	5.9	6.6	6.6	6.5	5.5	5.7	6.5	5.3	5.0	4.3	4.3	5.0	5.6	4.9	4.6	4.4	4.4	4.2	3.8	3.4	3.4	3.8	4.5	5.2	5.2	5.5
3.9	4.0	4.1	4.2	4.8	4.9	5.0	4.7	5.0	5.2	6.2	6.2	6.1	6.6	6.2	6.3	7.3	6.4	6.0	5.4	4.8	4.7	4.5	4.7	4.5	4.8	4.4	4.2	4.0	3.7	3.6	3.6	3.6	3.6	4.3	4.1
4.2	4.1	4.1	4.8	4.8	5.4	6.0	6.0	6.0	5.8	6.2	7.6	6.4	6.2	6.3	6.7	6.9	6.6	6.5	6.0	5.3	5.4	5.4	5.7	5.5	5.1	5.0	4.9	4.3	3.8	3.8	4.0	4.4	4.3	4.2	4.2
4.8	4.7	5.1	6.1	7.3	8.2	8.5	8.2	8.2	7.8	7.8	7.7	7.0	7.0	6.7	7.0	7.8	8.5	8.9	9.0	8.8	8.8	8.9	8.4	7.4	7.3	7.8	7.6	7.3	6.8	6.7	6.6	6.5	6.4	5.5	5.0
6.9	7.0	7.2	7.7	7.9	8.5	8.9	9.2	9.1	8.8	7.7	7.6	7.9	7.9	8.1	8.3	8.8	9.0	9.2	9.3	9.3	9.5	9.7	9.5	9.5	9.0	8.6	8.2	8.2	7.9	7.5	7.4	7.2	7.1	6.8	6.7

ATOVS : MEAN O-B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)

FIGURE 30

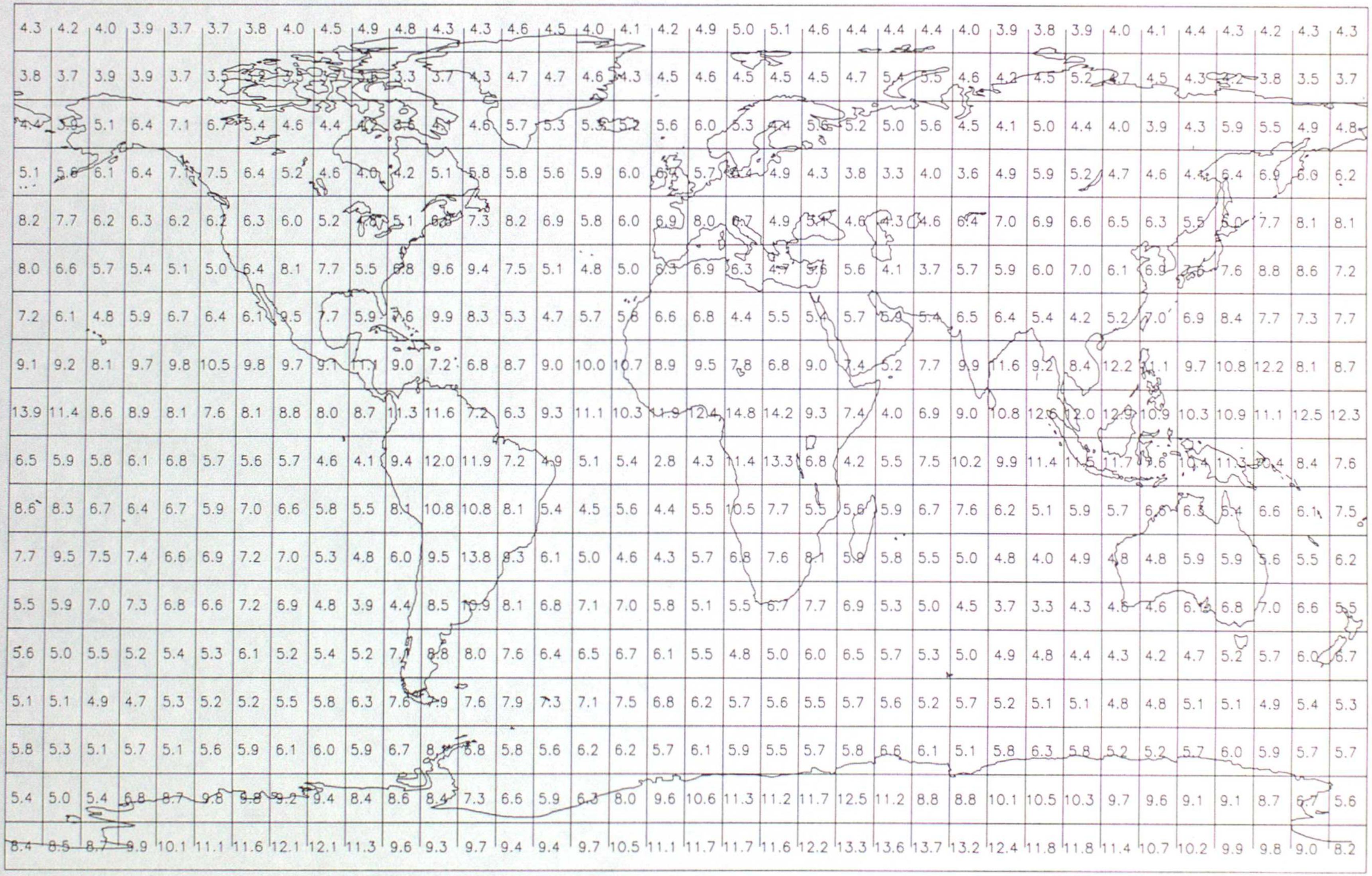
OCTOBER 2000 : HIRS11 Channel (500-700 hPa)

NOAA-15, USING ALL OBSERVATIONS


-1.7 -1.6 -1.6 -1.5 -1.3 -1.2 -1.2 -1.5 -1.5 -.9 .7 -.2 -.4 -.3 .2 -.4 -1.5 -2.0 -2.6 -2.7 -2.4 -1.8 -1.8 -1.7 -1.5 -1.0 -.7 -.7 -.9 -.9 -.8 -.8 -.9 -1.1 -1.5 -1.6
-1.2 -1.3 -1.0 -1.1 -1.0 -.7 -.8 -1.2 [illegible] -.9 -.9 -1.2 -.1 1.4 1.4 -.5 -1.7 -2.2 -2.6 -2.8 -2.6 -1.8 -1.6 -2.0 -2.1 -1.7 -1.4 -1.8 -2.5 -2.4 -2.0 -2.0 -1.8 -1.4 -1.1 -1.2
-1.7 [illegible] -2.0 -2.9 -3.1 -2.6 -2.2 -1.7 -1.3 -1.5 -1.5 -2.2 -2.6 -1.2 -1.4 -1.3 -1.8 -2.4 -2.9 -2.9 -2.4 -1.4 -.8 -1.1 -1.6 -1.3 -1.4 -2.1 -2.0 -1.6 -1.6 -2.1 -3.1 -1.9 -1.1 -1.7
-2.0 -2.1 -2.1 -2.8 [illegible] -4.3 -2.8 -1.3 -1.2 -1.5 -1.8 -2.6 -2.8 -3.2 -2.3 -1.9 -2.1 [illegible] -2.9 -2.6 -1.2 -.5 .0 .0 -.6 -.7 -1.4 -2.3 -2.4 -3.0 -2.5 [illegible] -2.8 -3.2 -2.0 -2.0
-4.0 -3.8 -2.5 -2.9 -2.8 -3.2 -2.7 -1.6 -1.9 -2.0 -2.2 -2.8 -3.2 -3.3 -2.3 -1.8 -1.4 -3.3 -4.6 -2.6 -1.5 -3.8 -.5 -.4 -.4 -2.2 -2.6 -2.9 -2.7 -2.6 -1.4 -1.1 -1.8 -2.7 -3.2 -2.6
-3.4 -1.7 -1.2 -1.2 -.6 -.3 -1.2 -3.4 -4.3 -1.8 -2.1 -4.6 -4.0 -1.3 -.1 -.6 -.8 -2.8 -3.3 -2.0 -.7 -1.1 -1.5 -.2 -.1 -.6 .5 -2.2 -2.7 -1.1 -1.7 -2.8 -2.5 -4.0 -4.4 -2.6
-1.9 -.5 -.2 -1.2 -2.0 -1.2 -.5 -5.5 -4.3 .2 [illegible] -3.5 -2.7 .1 .5 -.6 -.8 -2.8 -4.0 -2.0 -1.5 -.9 -3.2 -1.8 .1 -1.2 -.2 1.2 1.1 .2 -1.2 -.9 -1.8 -1.9 -.3 -.9
-2.9 -3.5 -2.6 -2.7 -3.6 -4.0 -2.6 -3.7 -2.9 -3.4 -1.2 -.2 -1.1 -2.1 -2.3 -4.7 -5.7 -4.3 -3.5 -2.3 -1.4 -1.9 -2.0 .4 -1.1 -4.2 -2.8 -3.4 -3.1 -5.1 -5.4 -3.4 -4.6 -5.0 -1.7 -3.5
-5.7 -3.1 -1.2 -1.7 -1.6 -.9 -1.3 -1.5 .2 -1.2 -6.1 -8.4 -2.6 .4 -2.5 -4.6 -3.5 -3.6 -5.3 -9.3 -7.9 -3.8 .2 2.0 -.2 -3.9 -7.4 -10.4 -10.3 -11.2 -6.8 -5.7 -6.8 -6.2 -6.1 -6.6
.6 1.7 1.4 1.2 .6 1.4 1.5 .9 .9 .9 -4.0 -10.0 -7.1 -1.2 .8 1.1 1.3 2.4 .8 -3.9 -7.4 -1.2 1.8 .9 -1.9 -4.2 -3.6 -6.6 -7.3 -6.1 -2.1 -5.8 -7.8 -4.7 -2.6 -1.3
-2.5 -1.9 -.3 .0 .1 .8 .6 .5 .6 1.2 -2.6 -7.5 -7.7 -3.1 .8 1.3 .3 .9 -.7 -4.8 -1.3 .7 1.6 .9 .2 -.2 1.1 .9 .4 .9 .0 -2.0 -1.4 -.3 -.1 -2.6
-3.3 -5.0 -2.2 -2.7 -1.8 -2.2 -2.0 -1.3 -.4 -.1 .1 -1.4 -7.6 -4.4 -.7 .4 .5 1.1 .5 -1.7 -3.3 -2.2 .6 .3 .3 .8 .8 1.1 .5 .4 -2.3 -4.9 -4.0 -1.1 -.7 -1.1
-1.5 -2.0 -2.8 -3.3 -2.5 -2.1 -2.6 -1.4 -.7 -.1 .4 -1.2 -4.6 -2.7 -1.5 -2.1 -2.9 -1.3 -1.1 -.4 -1.3 -2.1 -1.6 -.4 -.5 -.3 .2 .3 -.1 -.2 -.8 -2.3 -3.8 -3.4 -2.3 .7
-2.2 -1.5 -1.8 -1.9 -2.1 -1.4 -2.5 -1.8 -2.5 -2.2 -3.3 -3.7 -3.3 -3.6 -2.4 -2.7 -3.1 -2.2 -1.3 -1.5 -1.7 -1.9 -2.6 -1.8 -1.5 -1.9 -1.7 -1.7 -1.6 -1.5 -1.3 -1.5 -2.2 -2.4 -2.7 -2.6
-2.6 -2.7 -2.5 -2.4 -2.6 -2.2 -2.1 -1.9 -2.3 -2.9 -4.9 -4.6 -3.9 -4.3 -4.3 -3.8 -4.5 -4.0 -3.4 -3.4 -3.6 -3.2 -3.3 -3.3 -2.7 -3.3 -3.0 -3.2 -3.5 -3.3 -3.3 -2.9 -2.7 -2.5 -3.4 -3.0
-3.6 -3.3 -2.9 -3.0 -2.5 -2.7 -3.3 -3.4 -3.6 -3.7 -4.4 [illegible] -4.2 -2.9 -2.4 -2.7 -2.3 -2.1 -3.2 -3.4 -3.1 -3.4 -2.8 -2.0 -2.4 -2.5 -1.8 -1.4 -.9 -1.6 -2.1 -1.9 -3.2 -3.7 -3.5 -3.4
-2.8 -2.2 -2.2 -2.1 -2.6 -3.3 -4.3 -4.3 -3.5 -2.5 -3.4 -3.0 -3.1 -2.5 -1.6 -.1 1.2 2.8 3.3 3.6 4.1 4.5 4.5 3.7 2.6 2.5 3.7 4.8 4.6 4.2 3.6 3.3 2.2 1.0 -1.0 -2.6
-2.5 -2.9 -2.9 -2.3 -2.5 -3.3 -3.2 -.9 -.1 -2.3 -3.7 -3.9 -3.2 -2.4 -.6 1.1 3.1 4.6 5.1 5.3 5.4 5.6 5.9 5.4 5.3 5.4 5.4 4.7 3.9 3.3 2.8 2.7 1.4 .9 -1.9 -2.4

ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
OCTOBER 2000 : HIRS11 channel (500-700 hPa)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 31

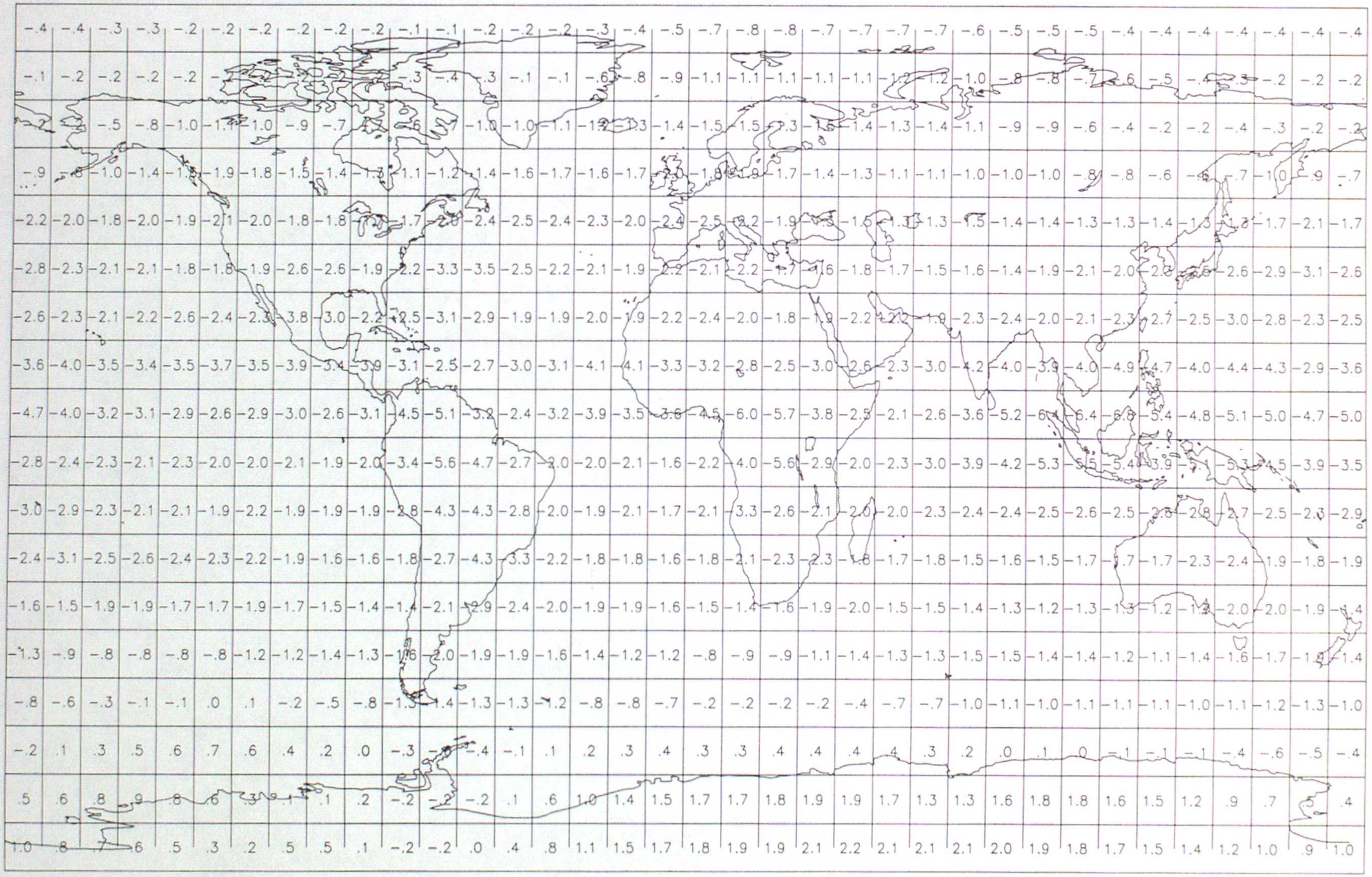


4.3	4.2	4.0	3.9	3.7	3.7	3.8	4.0	4.5	4.9	4.8	4.3	4.3	4.6	4.5	4.0	4.1	4.2	4.9	5.0	5.1	4.6	4.4	4.4	4.4	4.0	3.9	3.8	3.9	4.0	4.1	4.4	4.3	4.2	4.3	4.3
3.8	3.7	3.9	3.9	3.7	3.5	3.2	3.5	3.7	3.6	3.3	3.7	4.3	4.7	4.7	4.6	4.3	4.5	4.6	4.5	4.5	4.5	4.7	5.4	5.5	4.6	4.2	4.5	5.2	4.7	4.5	4.3	4.2	3.8	3.5	3.7
4.4	3.9	5.1	6.4	7.1	6.7	5.4	4.6	4.4	4.2	3.6	4.1	4.6	5.7	5.3	5.3	5.2	5.6	6.0	5.3	4.4	5.6	5.2	5.0	5.6	4.5	4.1	5.0	4.4	4.0	3.9	4.3	5.9	5.5	4.9	4.8
5.1	5.6	6.1	6.4	7.1	7.5	6.4	5.2	4.6	4.0	4.2	5.1	5.8	5.8	5.6	5.9	6.0	6.4	5.7	5.4	4.9	4.3	3.8	3.3	4.0	3.6	4.9	5.9	5.2	4.7	4.6	4.4	6.4	6.9	6.0	6.2
8.2	7.7	6.2	6.3	6.2	6.2	6.3	6.0	5.2	4.8	5.1	6.8	7.3	8.2	6.9	5.8	6.0	6.9	8.0	6.7	4.9	5.4	4.6	4.3	4.6	6.4	7.0	6.9	6.6	6.5	6.3	5.5	5.0	7.7	8.1	8.1
8.0	6.6	5.7	5.4	5.1	5.0	6.4	8.1	7.7	5.5	6.8	9.6	9.4	7.5	5.1	4.8	5.0	6.3	6.9	6.3	4.7	3.6	5.6	4.1	3.7	5.7	5.9	6.0	7.0	6.1	6.9	7.6	7.6	8.8	8.6	7.2
7.2	6.1	4.8	5.9	6.7	6.4	6.1	9.5	7.7	5.9	7.6	9.9	8.3	5.3	4.7	5.7	5.8	6.6	6.8	4.4	5.5	5.4	5.7	5.9	5.4	6.5	6.4	5.4	4.2	5.2	7.0	6.9	8.4	7.7	7.3	7.7
9.1	9.2	8.1	9.7	9.8	10.5	9.8	9.7	9.1	11.1	9.0	7.2	6.8	8.7	9.0	10.0	10.7	8.9	9.5	7.8	6.8	9.0	7.4	5.2	7.7	9.9	11.6	9.2	8.4	12.2	11.1	9.7	10.8	12.2	8.1	8.7
13.9	11.4	8.6	8.9	8.1	7.6	8.1	8.8	8.0	8.7	11.3	11.6	7.2	6.3	9.3	11.1	10.3	11.9	12.4	14.8	14.2	9.3	7.4	4.0	6.9	9.0	10.8	12.6	12.0	12.9	10.9	10.3	10.9	11.1	12.5	12.3
6.5	5.9	5.8	6.1	6.8	5.7	5.6	5.7	4.6	4.1	9.4	12.0	11.9	7.2	4.9	5.1	5.4	2.8	4.3	11.4	13.3	6.8	4.2	5.5	7.5	10.2	9.9	11.4	11.5	11.7	9.6	10.4	11.3	10.4	8.4	7.6
8.6	8.3	6.7	6.4	6.7	5.9	7.0	6.6	5.8	5.5	8.1	10.8	10.8	8.1	5.4	4.5	5.6	4.4	5.5	10.5	7.7	5.5	5.6	5.9	6.7	7.6	6.2	5.1	5.9	5.7	6.6	6.3	5.4	6.6	6.1	7.5
7.7	9.5	7.5	7.4	6.6	6.9	7.2	7.0	5.3	4.8	6.0	9.5	13.8	8.3	6.1	5.0	4.6	4.3	5.7	6.8	7.6	8.1	5.9	5.8	5.5	5.0	4.8	4.0	4.9	4.8	4.8	5.9	5.9	5.6	5.5	6.2
5.5	5.9	7.0	7.3	6.8	6.6	7.2	6.9	4.8	3.9	4.4	8.5	10.9	8.1	6.8	7.1	7.0	5.8	5.1	5.5	6.7	7.7	6.9	5.3	5.0	4.5	3.7	3.3	4.3	4.5	4.6	6.3	6.8	7.0	6.6	5.5
5.6	5.0	5.5	5.2	5.4	5.3	6.1	5.2	5.4	5.2	7.1	8.8	8.0	7.6	6.4	6.5	6.7	6.1	5.5	4.8	5.0	6.0	6.5	5.7	5.3	5.0	4.9	4.8	4.4	4.3	4.2	4.7	5.2	5.7	6.0	6.7
5.1	5.1	4.9	4.7	5.3	5.2	5.2	5.5	5.8	6.3	7.6	7.9	7.6	7.9	7.3	7.1	7.5	6.8	6.2	5.7	5.6	5.5	5.7	5.6	5.2	5.7	5.2	5.1	5.1	4.8	4.8	5.1	5.1	4.9	5.4	5.3
5.8	5.3	5.1	5.7	5.1	5.6	5.9	6.1	6.0	5.9	6.7	[illegible]	6.8	5.8	5.6	6.2	6.2	5.7	6.1	5.9	5.5	5.7	5.8	6.6	6.1	5.1	5.8	6.3	5.8	5.2	5.2	5.7	6.0	5.9	5.7	5.7
5.4	5.0	5.4	6.8	8.7	9.8	9.8	9.2	9.4	8.4	8.6	8.4	7.3	6.6	5.9	6.3	8.0	9.6	10.6	11.3	11.2	11.7	12.5	11.2	8.8	8.8	10.1	10.5	10.3	9.7	9.6	9.1	9.1	8.7	6.7	5.6
8.4	8.5	8.7	9.9	10.1	11.1	11.6	12.1	12.1	11.3	9.6	9.3	9.7	9.4	9.4	9.7	10.5	11.1	11.7	11.7	11.6	12.2	13.3	13.6	13.7	13.2	12.4	11.8	11.8	11.4	10.7	10.2	9.9	9.8	9.0	8.2

ATOVS : MEAN O-B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)

FIGURE 32

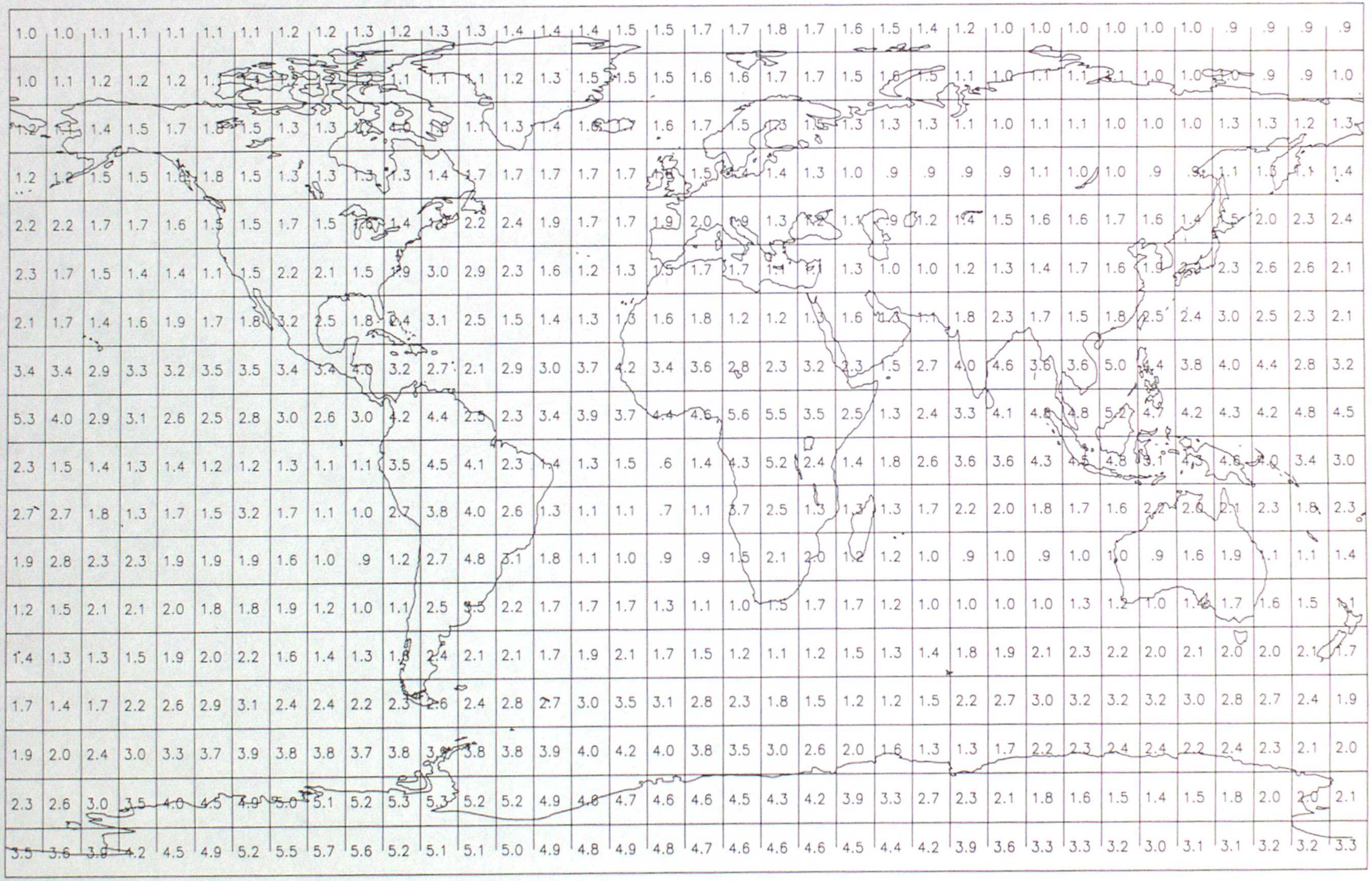
OCTOBER 2000 : HIRS4 channel (400 hPa)
NOAA-15, USING ALL OBSERVATIONS



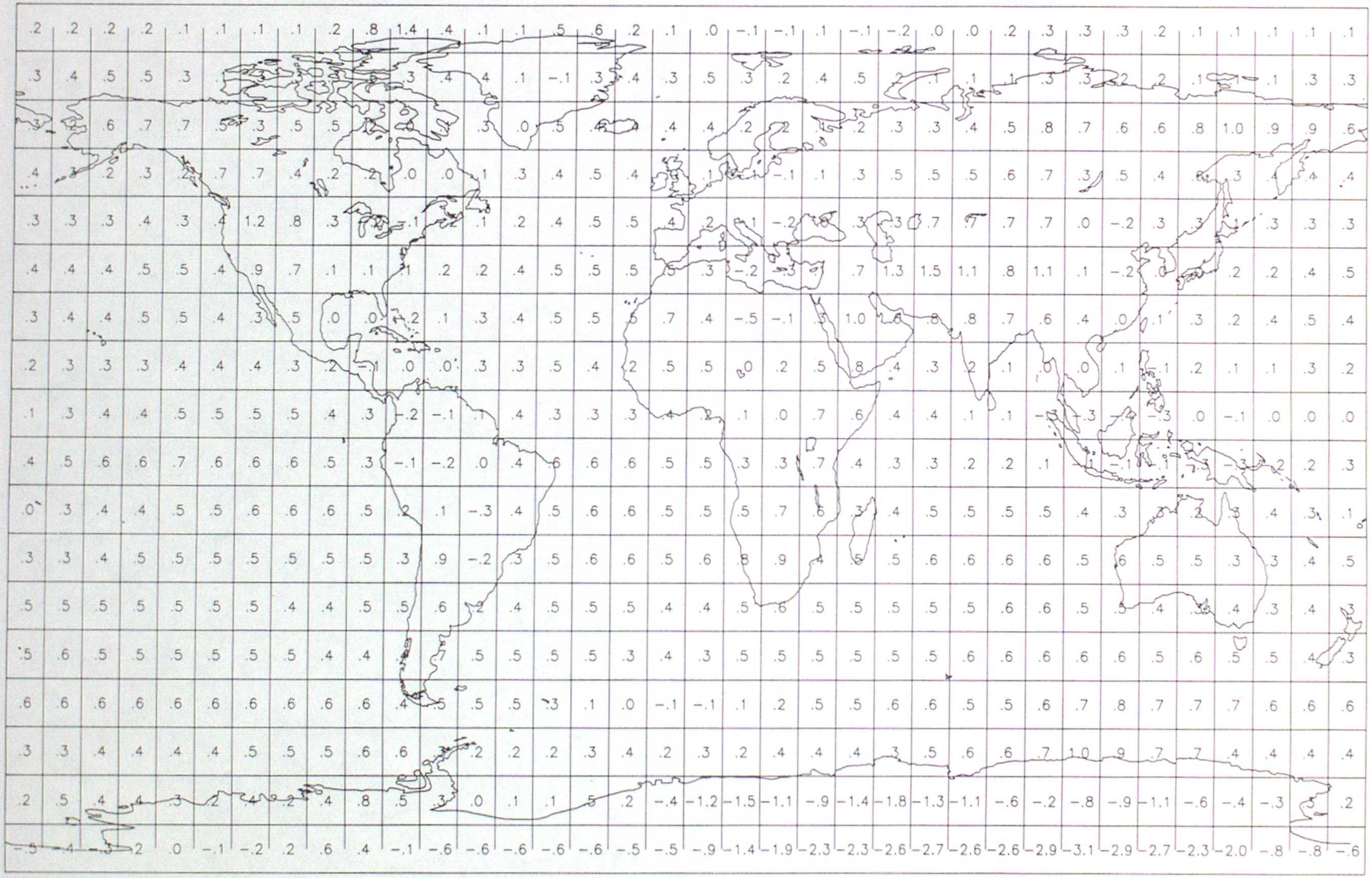
-.4	-.4	-.3	-.3	-.2	-.2	-.2	-.2	-.2	-.2	-.1	-.1	-.2	-.2	-.2	-.3	-.4	-.5	-.7	-.8	-.8	-.7	-.7	-.7	-.7	-.6	-.5	-.5	-.5	-.4	-.4	-.4	-.4	-.4	-.4	-.4
-.1	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.2	[illegible]	-.3	-.4	-.3	-.1	-.1	-.6	-.8	-.9	-1.1	-1.1	-1.1	-1.1	-1.1	-1.2	-1.2	-1.0	-.8	-.8	-.7	-.6	-.5	-.4	-.3	-.2	-.2	-.2
-.2	-.3	-.5	-.8	-1.0	-1.1	-1.0	-.9	-.7	-.7	-.6	-.7	-1.0	-1.0	-1.1	-1.2	-1.3	-1.4	-1.5	-1.5	-1.3	-1.5	-1.4	-1.3	-1.4	-1.1	-.9	-.9	-.6	-.4	-.2	-.2	-.4	-.3	-.2	-.2
-.9	-.8	-1.0	-1.4	-1.5	-1.9	-1.8	-1.5	-1.4	-1.3	-1.1	-1.2	-1.4	-1.6	-1.7	-1.6	-1.7	-2.0	-1.8	-1.9	-1.7	-1.4	-1.3	-1.1	-1.1	-1.0	-1.0	-1.0	-.8	-.8	-.6	-.6	-.7	-1.0	-.9	-.7
-2.2	-2.0	-1.8	-2.0	-1.9	-2.1	-2.0	-1.8	-1.8	-1.7	-1.7	-2.0	-2.4	-2.5	-2.4	-2.3	-2.0	-2.4	-2.5	-2.2	-1.9	-1.5	-1.6	-1.3	-1.3	-1.5	-1.4	-1.4	-1.3	-1.3	-1.4	-1.3	-1.8	-1.7	-2.1	-1.7
-2.8	-2.3	-2.1	-2.1	-1.8	-1.8	-1.9	-2.6	-2.6	-1.9	-2.2	-3.3	-3.5	-2.5	-2.2	-2.1	-1.9	-2.2	-2.1	-2.2	-1.7	-1.6	-1.8	-1.7	-1.5	-1.6	-1.4	-1.9	-2.1	-2.0	-2.6	-2.6	-2.6	-2.9	-3.1	-2.6
-2.6	-2.3	-2.1	-2.2	-2.6	-2.4	-2.3	-3.8	-3.0	-2.2	-2.5	-3.1	-2.9	-1.9	-1.9	-2.0	-1.9	-2.2	-2.4	-2.0	-1.8	-1.9	-2.2	-2.2	-1.9	-2.3	-2.4	-2.0	-2.1	-2.3	-2.7	-2.5	-3.0	-2.8	-2.3	-2.5
-3.6	-4.0	-3.5	-3.4	-3.5	-3.7	-3.5	-3.9	-3.4	-3.9	-3.1	-2.5	-2.7	-3.0	-3.1	-4.1	-4.1	-3.3	-3.2	-2.8	-2.5	-3.0	-2.6	-2.3	-3.0	-4.2	-4.0	-3.9	-4.0	-4.9	-4.7	-4.0	-4.4	-4.3	-2.9	-3.6
-4.7	-4.0	-3.2	-3.1	-2.9	-2.6	-2.9	-3.0	-2.6	-3.1	-4.5	-5.1	-3.2	-2.4	-3.2	-3.9	-3.5	-3.6	-4.5	-6.0	-5.7	-3.8	-2.5	-2.1	-2.6	-3.6	-5.2	-6.4	-6.4	-6.8	-5.4	-4.8	-5.1	-5.0	-4.7	-5.0
-2.8	-2.4	-2.3	-2.1	-2.3	-2.0	-2.0	-2.1	-1.9	-2.0	-3.4	-5.6	-4.7	-2.7	-2.0	-2.0	-2.1	-1.6	-2.2	-4.0	-5.6	-2.9	-2.0	-2.3	-3.0	-3.9	-4.2	-5.3	-5.5	-5.4	-3.9	-5.1	-5.3	-4.5	-3.9	-3.5
-3.0	-2.9	-2.3	-2.1	-2.1	-1.9	-2.2	-1.9	-1.9	-1.9	-2.8	-4.3	-4.3	-2.8	-2.0	-1.9	-2.1	-1.7	-2.1	-3.3	-2.6	-2.1	-2.0	-2.0	-2.3	-2.4	-2.4	-2.5	-2.6	-2.5	-2.8	-2.8	-2.7	-2.5	-2.3	-2.9
-2.4	-3.1	-2.5	-2.6	-2.4	-2.3	-2.2	-1.9	-1.6	-1.6	-1.8	-2.7	-4.3	-3.3	-2.2	-1.8	-1.8	-1.6	-1.8	-2.1	-2.3	-2.3	-1.8	-1.7	-1.8	-1.5	-1.6	-1.5	-1.7	-1.7	-1.7	-2.3	-2.4	-1.9	-1.8	-1.9
-1.6	-1.5	-1.9	-1.9	-1.7	-1.7	-1.9	-1.7	-1.5	-1.4	-1.4	-2.1	-2.9	-2.4	-2.0	-1.9	-1.9	-1.6	-1.5	-1.4	-1.6	-1.9	-2.0	-1.5	-1.5	-1.4	-1.3	-1.2	-1.3	-1.3	-1.2	-1.3	-2.0	-2.0	-1.9	-1.4
-1.3	-.9	-.8	-.8	-.8	-.8	-1.2	-1.2	-1.4	-1.3	-1.6	-2.0	-1.9	-1.9	-1.6	-1.4	-1.2	-1.2	-.8	-.9	-.9	-1.1	-1.4	-1.3	-1.3	-1.5	-1.5	-1.4	-1.4	-1.2	-1.1	-1.4	-1.6	-1.7	-1.8	-1.4
-.8	-.6	-.3	-.1	-.1	.0	.1	-.2	-.5	-.8	-1.3	-1.4	-1.3	-1.3	-1.2	-.8	-.8	-.7	-.2	-.2	-.2	-.2	-.4	-.7	-.7	-1.0	-1.1	-1.0	-1.1	-1.1	-1.1	-1.0	-1.1	-1.2	-1.3	-1.0
-.2	.1	.3	.5	.6	.7	.6	.4	.2	.0	-.3	[illegible]	-.4	-.1	.1	.2	.3	.4	.3	.3	.4	.4	.4	.4	.3	.2	.0	.1	.0	-.1	-.1	-.1	-.4	-.6	-.5	-.4
.5	.6	.8	.9	.8	.6	.3	.1	.1	.2	-.2	-.2	-.2	.1	.6	1.0	1.4	1.5	1.7	1.7	1.8	1.9	1.9	1.7	1.3	1.3	1.6	1.8	1.8	1.6	1.5	1.2	.9	.7	.5	.4
1.0	.8	.7	.6	.5	.3	.2	.5	.5	.1	-.2	-.2	.0	.4	.8	1.1	1.5	1.7	1.8	1.9	1.9	2.1	2.2	2.1	2.1	2.1	2.0	1.9	1.8	1.7	1.5	1.4	1.2	1.0	.9	1.0

ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
OCTOBER 2000 : HIRS4 channel (400 hPa)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 33


1.0 1.0 1.1 1.1 1.1 1.1 1.1 1.2 1.2 1.3 1.2 1.3 1.3 1.4 1.4 1.4 1.5 1.5 1.7 1.7 1.8 1.7 1.6 1.5 1.4 1.2 1.0 1.0 1.0 1.0 1.0 1.0 .9 .9 .9 .9
1.0 1.1 1.2 1.2 1.2 [illegible] [illegible] [illegible] [illegible] [illegible] 1.1 1.1 1.1 1.2 1.3 1.5 1.5 1.5 1.6 1.6 1.7 1.7 1.5 1.6 1.5 1.1 1.0 1.1 1.1 1.1 1.0 1.0 1.0 .9 .9 1.0
1.2 1.1 1.4 1.5 1.7 1.8 1.5 1.3 1.3 [illegible] [illegible] [illegible] 1.1 1.3 1.4 1.6 1.7 1.6 1.7 1.5 1.3 1.5 1.3 1.3 1.3 1.1 1.0 1.1 1.1 1.0 1.0 1.0 1.3 1.3 1.2 1.3
1.2 1.2 1.5 1.5 1.6 1.8 1.5 1.3 1.3 1.3 1.3 1.4 1.7 1.7 1.7 1.7 1.7 1.8 1.5 1.4 1.4 1.3 1.0 .9 .9 .9 .9 1.1 1.0 1.0 .9 .9 1.1 1.3 1.1 1.4
2.2 2.2 1.7 1.7 1.6 1.5 1.5 1.7 1.5 1.6 1.4 [illegible] 2.2 2.4 1.9 1.7 1.7 1.9 2.0 1.9 1.3 1.2 1.1 .9 1.2 1.4 1.5 1.6 1.6 1.7 1.6 1.4 1.5 2.0 2.3 2.4
2.3 1.7 1.5 1.4 1.4 1.1 1.5 2.2 2.1 1.5 1.9 3.0 2.9 2.3 1.6 1.2 1.3 1.5 1.7 1.7 1.1 1.1 1.3 1.0 1.0 1.2 1.3 1.4 1.7 1.6 1.9 2.2 2.3 2.6 2.6 2.1
2.1 1.7 1.4 1.6 1.9 1.7 1.8 3.2 2.5 1.8 2.4 3.1 2.5 1.5 1.4 1.3 1.3 1.6 1.8 1.2 1.2 1.3 1.6 1.3 1.1 1.8 2.3 1.7 1.5 1.8 2.5 2.4 3.0 2.5 2.3 2.1
3.4 3.4 2.9 3.3 3.2 3.5 3.5 3.4 3.4 4.0 3.2 2.7 2.1 2.9 3.0 3.7 4.2 3.4 3.6 2.8 2.3 3.2 2.3 1.5 2.7 4.0 4.6 3.6 3.6 5.0 4.4 3.8 4.0 4.4 2.8 3.2
5.3 4.0 2.9 3.1 2.6 2.5 2.8 3.0 2.6 3.0 4.2 4.4 2.5 2.3 3.4 3.9 3.7 4.4 4.6 5.6 5.5 3.5 2.5 1.3 2.4 3.3 4.1 4.8 4.8 5.2 4.7 4.2 4.3 4.2 4.8 4.5
2.3 1.5 1.4 1.3 1.4 1.2 1.2 1.3 1.1 1.1 3.5 4.5 4.1 2.3 1.4 1.3 1.5 .6 1.4 4.3 5.2 2.4 1.4 1.8 2.6 3.6 3.6 4.3 4.5 4.8 3.1 4.3 4.6 4.0 3.4 3.0
2.7 2.7 1.8 1.3 1.7 1.5 3.2 1.7 1.1 1.0 2.7 3.8 4.0 2.6 1.3 1.1 1.1 .7 1.1 3.7 2.5 1.3 1.3 1.3 1.7 2.2 2.0 1.8 1.7 1.6 2.2 2.0 2.1 2.3 1.8 2.3
1.9 2.8 2.3 2.3 1.9 1.9 1.9 1.6 1.0 .9 1.2 2.7 4.8 3.1 1.8 1.1 1.0 .9 .9 1.5 2.1 2.0 1.2 1.2 1.0 .9 1.0 .9 1.0 1.0 .9 1.6 1.9 1.1 1.1 1.4
1.2 1.5 2.1 2.1 2.0 1.8 1.8 1.9 1.2 1.0 1.1 2.5 3.5 2.2 1.7 1.7 1.7 1.3 1.1 1.0 1.5 1.7 1.7 1.2 1.0 1.0 1.0 1.0 1.3 1.2 1.0 1.4 1.7 1.6 1.5 1.1
1.4 1.3 1.3 1.5 1.9 2.0 2.2 1.6 1.4 1.3 1.8 2.4 2.1 2.1 1.7 1.9 2.1 1.7 1.5 1.2 1.1 1.2 1.5 1.3 1.4 1.8 1.9 2.1 2.3 2.2 2.0 2.1 2.0 2.0 2.1 1.7
1.7 1.4 1.7 2.2 2.6 2.9 3.1 2.4 2.4 2.2 2.3 2.6 2.4 2.8 2.7 3.0 3.5 3.1 2.8 2.3 1.8 1.5 1.2 1.2 1.5 2.2 2.7 3.0 3.2 3.2 3.2 3.0 2.8 2.7 2.4 1.9
1.9 2.0 2.4 3.0 3.3 3.7 3.9 3.8 3.8 3.7 3.8 3.8 3.8 3.8 3.9 4.0 4.2 4.0 3.8 3.5 3.0 2.6 2.0 1.6 1.3 1.3 1.7 2.2 2.3 2.4 2.4 2.2 2.4 2.3 2.1 2.0
2.3 2.6 3.0 3.5 4.0 4.5 4.9 5.0 5.1 5.2 5.3 5.3 5.2 5.2 4.9 4.8 4.7 4.6 4.6 4.5 4.3 4.2 3.9 3.3 2.7 2.3 2.1 1.8 1.6 1.5 1.4 1.5 1.8 2.0 2.0 2.1
3.5 3.6 3.8 4.2 4.5 4.9 5.2 5.5 5.7 5.6 5.2 5.1 5.1 5.0 4.9 4.8 4.9 4.8 4.7 4.6 4.6 4.6 4.5 4.4 4.2 3.9 3.6 3.3 3.3 3.2 3.0 3.1 3.1 3.2 3.2 3.3

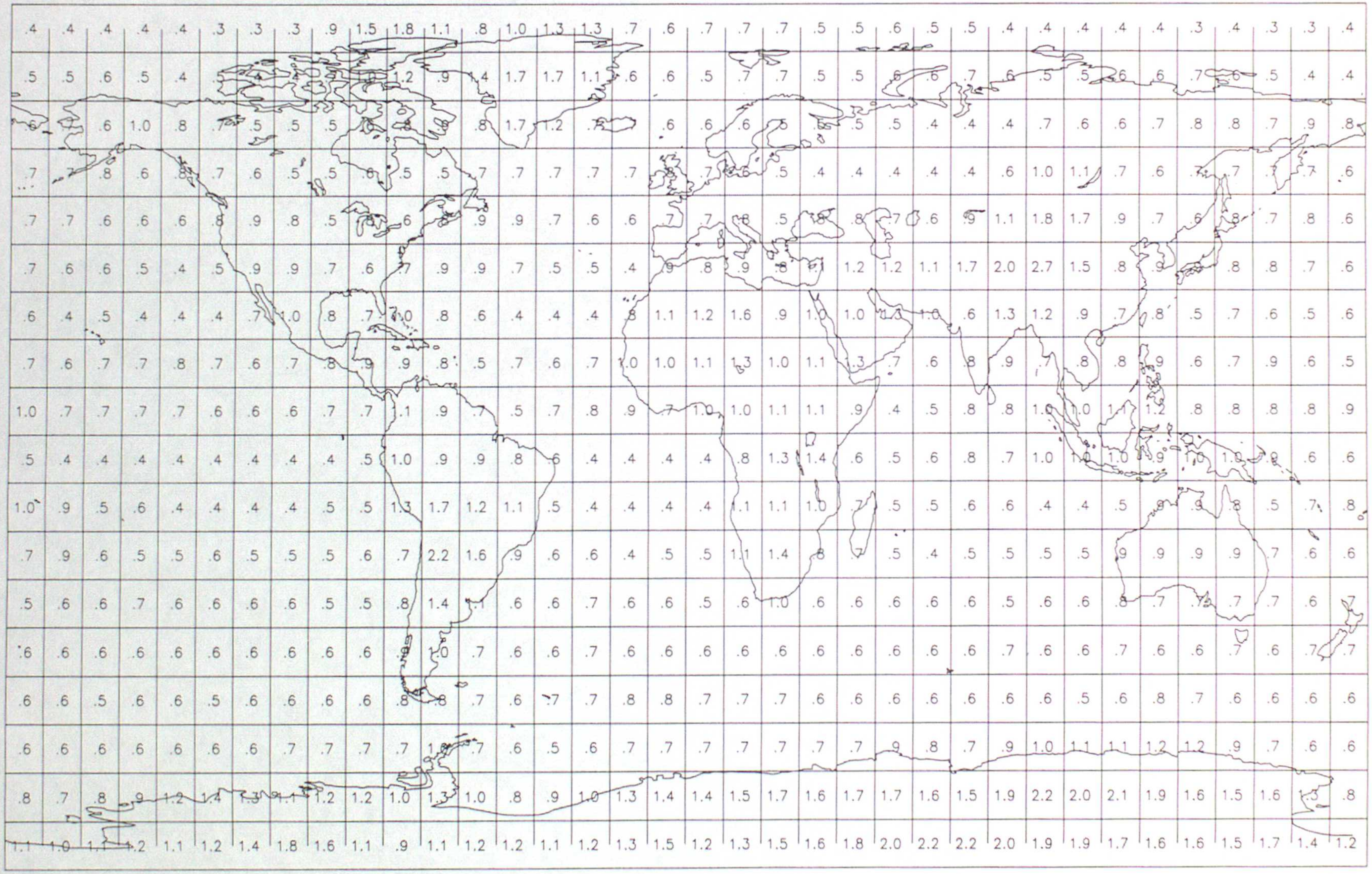
ATOVS : MEAN O-B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)   FIGURE 34
OCTOBER 2000   : AMSUA-5 Channel (700 hPa)
NOAA-15, USING ALL OBSERVATIONS



.2	.2	.2	.2	.1	.1	.1	.1	.2	.8	1.4	.4	.1	.1	.5	.6	.2	.1	.0	−.1	−.1	.1	−.1	−.2	.0	.0	.2	.3	.3	.3	.2	.1	.1	.1	.1	.1
.3	.4	.5	.5	.3	[illegible]	.3	[illegible]	.3	[illegible]	.3	.4	.4	.1	−.1	.3	.4	.3	.5	.3	.2	.4	.5	.2	.1	.1	.1	.3	.3	.2	.2	.1	.1	.1	.3	.3
.3	.2	.6	.7	.7	.5	.3	.5	.5	[illegible]	[illegible]	[illegible]	.3	.0	.5	.4	.4	.4	.4	.2	.2	.1	.2	.3	.3	.4	.5	.8	.7	.6	.6	.8	1.0	.9	.9	.6
.4	.3	.2	.3	.2	.7	.7	.4	.2	.2	.0	.0	.1	.3	.4	.5	.4	[illegible]	.1	.1	−.1	.1	.3	.5	.5	.5	.6	.7	.3	.5	.4	.6	.3	.4	.4	.4
.3	.3	.3	.4	.3	.4	1.2	.8	.3	.2	−.1	.2	.1	.2	.4	.5	.5	.4	.2	.1	−.2	[illegible]	.3	.3	.7	.7	.7	.7	.0	−.2	.3	.3	.1	.3	.3	.3
.4	.4	.4	.5	.5	.4	.9	.7	.1	.1	.1	.2	.2	.4	.5	.5	.5	.5	.3	−.2	−.3	[illegible]	.7	1.3	1.5	1.1	.8	1.1	.1	−.2	.0	[illegible]	.2	.2	.4	.5
.3	.4	.4	.5	.5	.4	.3	.5	.0	.0	.2	.1	.3	.4	.5	.5	.5	.7	.4	−.5	−.1	.3	1.0	.6	.8	.8	.7	.6	.4	.0	.1	.3	.2	.4	.5	.4
.2	.3	.3	.3	.4	.4	.4	.3	.2	−.1	.0	.0	.3	.3	.5	.4	.2	.5	.5	.0	.2	.5	.8	.4	.3	.2	.1	.0	.0	.1	−.1	.2	.1	.1	.3	.2
.1	.3	.4	.4	.5	.5	.5	.5	.4	.3	−.2	−.1	.1	.4	.3	.3	.3	.4	.2	.1	.0	.7	.6	.4	.4	.1	.1	−.3	−.3	−.4	−.3	.0	−.1	.0	.0	.0
.4	.5	.6	.6	.7	.6	.6	.6	.5	.3	−.1	−.2	.0	.4	.6	.6	.6	.5	.5	.3	.3	.7	.4	.3	.3	.2	.2	.1	−.1	−.1	−.1	−.3	−.3	.2	.2	.3
.0	.3	.4	.4	.5	.5	.6	.6	.6	.5	.2	.1	−.3	.4	.5	.6	.6	.5	.5	.5	.7	.6	.3	.4	.5	.5	.5	.5	.4	.3	.3	.2	.3	.4	.3	.1
.3	.3	.4	.5	.5	.5	.5	.5	.5	.5	.3	.9	−.2	.3	.5	.6	.6	.5	.6	.8	.9	.4	.5	.5	.6	.6	.6	.6	.5	.6	.5	.5	.3	.3	.4	.5
.5	.5	.5	.5	.5	.5	.5	.4	.4	.5	.5	.6	.2	.4	.5	.5	.5	.4	.4	.5	.6	.5	.5	.5	.5	.5	.6	.6	.5	.5	.4	.3	.4	.3	.4	.3
.5	.6	.5	.5	.5	.5	.5	.5	.4	.4	.4	.7	.5	.5	.5	.5	.3	.4	.3	.5	.5	.5	.5	.5	.5	.6	.6	.6	.6	.6	.5	.6	.5	.5	.4	.3
.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.4	.5	.5	.5	.3	.1	.0	−.1	−.1	.1	.2	.5	.5	.6	.6	.5	.5	.6	.7	.8	.7	.7	.7	.6	.6	.6
.3	.3	.4	.4	.4	.4	.5	.5	.5	.6	.6	.3	.2	.2	.2	.3	.4	.2	.3	.2	.4	.4	.4	.3	.5	.6	.6	.7	1.0	.9	.7	.7	.4	.4	.4	.4
.2	.5	.4	.4	.3	.2	.4	.2	.4	.8	.5	.3	.0	.1	.1	.5	.2	−.4	−1.2	−1.5	−1.1	−.9	−1.4	−1.8	−1.3	−1.1	−.6	−.2	−.8	−.9	−1.1	−.6	−.4	−.3	.3	.2
−.5	−.4	−.3	.2	.0	−.1	−.2	.2	.6	.4	−.1	−.6	−.6	−.6	−.6	−.6	−.5	−.5	−.9	−1.4	−1.9	−2.3	−2.3	−2.6	−2.7	−2.6	−2.6	−2.9	−3.1	−2.9	−2.7	−2.3	−2.0	−.8	−.8	−.6

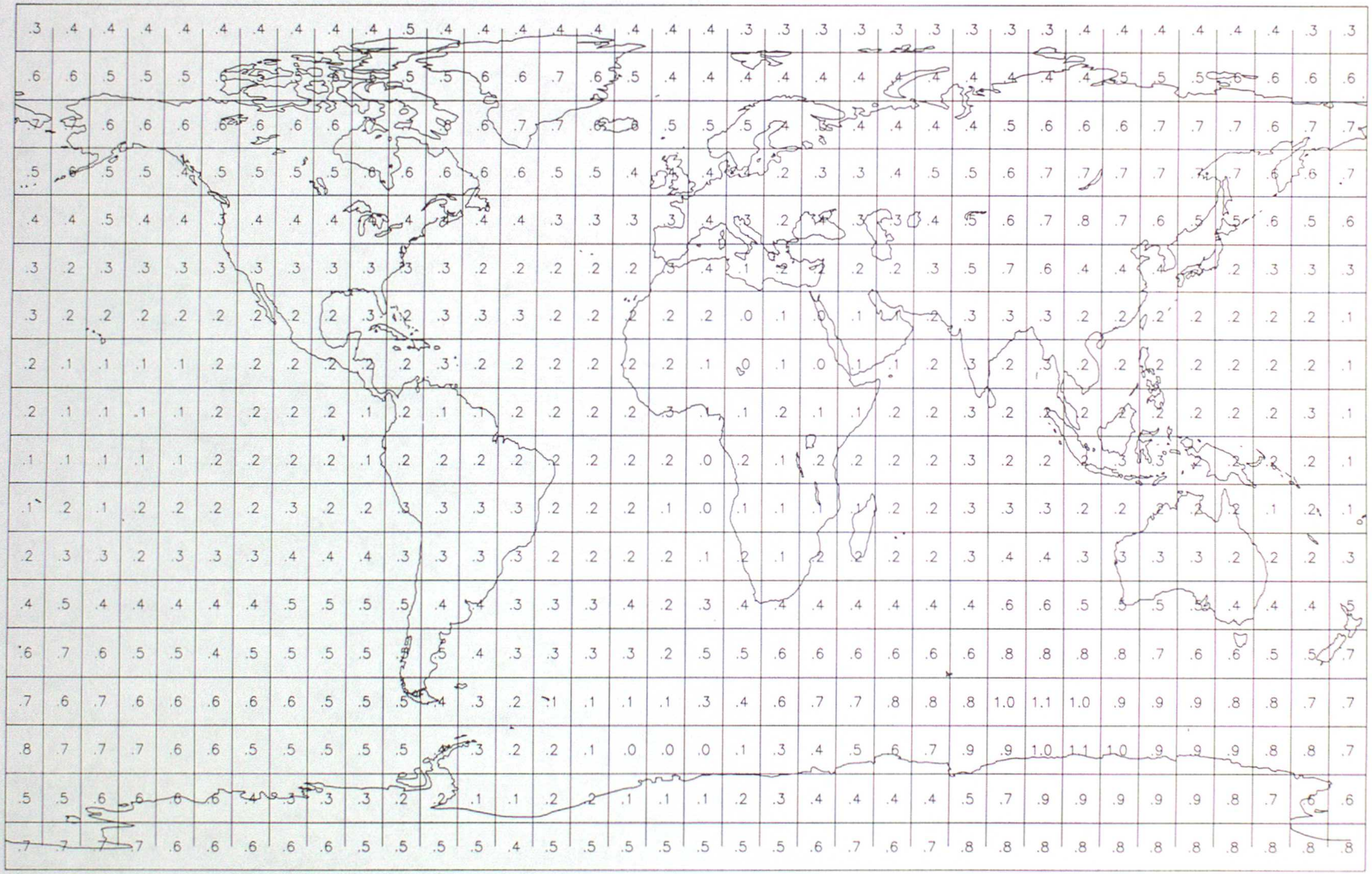
ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
OCTOBER 2000 : AMSUA-5 channel (700 hPa)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 35


.4 .4 .4 .4 .4 .3 .3 .3 .9 1.5 1.8 1.1 .8 1.0 1.3 1.3 .7 .6 .7 .7 .7 .5 .5 .6 .5 .5 .4 .4 .4 .4 .4 .3 .4 .3 .3 .4
.5 .5 .6 .5 .4 .5 [illegible] .4 [illegible] 1.0 1.2 .9 1.4 1.7 1.7 1.1 .6 .6 .5 .7 .7 .5 .5 .6 .6 .7 .6 .5 .5 .6 .6 .7 .6 .5 .4 .4
.6 .7 .6 1.0 .8 .7 .5 .5 .5 .6 .8 .9 .8 1.7 1.2 .7 [illegible] .6 .6 .6 .5 .5 .5 .5 .4 .4 .4 .7 .6 .6 .7 .8 .8 .7 .9 .8
.7 .7 .8 .6 .8 .7 .6 .5 .5 .6 .5 .5 .7 .7 .7 .7 .7 .8 .7 .6 .5 .4 .4 .4 .4 .4 .6 1.0 1.1 .7 .6 .7 .7 .7 .7 .6
.7 .7 .6 .6 .6 .8 .9 .8 .5 .8 .6 .8 .9 .9 .7 .6 .6 .7 .7 .8 .5 .8 .8 .7 .6 .9 1.1 1.8 1.7 .9 .7 .6 .8 .7 .8 .6
.7 .6 .6 .5 .4 .5 .9 .9 .7 .6 .7 .9 .9 .7 .5 .5 .4 .9 .8 .9 .8 1.1 1.2 1.2 1.1 1.7 2.0 2.7 1.5 .8 .9 [illegible] .8 .8 .7 .6
.6 .4 .5 .4 .4 .4 .7 1.0 .8 .7 1.0 .8 .6 .4 .4 .4 .8 1.1 1.2 1.6 .9 1.0 1.0 1.3 1.0 .6 1.3 1.2 .9 .7 .8 .5 .7 .6 .5 .6
.7 .6 .7 .7 .8 .7 .6 .7 .8 .9 .9 .8 .5 .7 .6 .7 1.0 1.0 1.1 1.3 1.0 1.1 1.3 .7 .6 .8 .9 .7 .8 .8 .9 .6 .7 .9 .6 .5
1.0 .7 .7 .7 .7 .6 .6 .6 .7 .7 1.1 .9 .7 .5 .7 .8 .9 .7 1.0 1.0 1.1 1.1 .9 .4 .5 .8 .8 1.0 1.0 1.1 1.2 .8 .8 .8 .8 .9
.5 .4 .4 .4 .4 .4 .4 .4 .4 .5 1.0 .9 .9 .8 .6 .4 .4 .4 .4 .4 .8 1.3 1.4 .6 .5 .6 .8 .7 1.0 1.0 1.0 .9 1.0 1.0 .9 .6 .6
1.0 .9 .5 .6 .4 .4 .4 .4 .5 .5 1.3 1.7 1.2 1.1 .5 .4 .4 .4 .4 .4 1.1 1.1 1.0 .7 .5 .5 .6 .6 .4 .4 .5 .9 .9 .8 .5 .7 .8
.7 .9 .6 .5 .5 .6 .5 .5 .5 .6 .7 2.2 1.6 .9 .6 .6 .4 .5 .5 .5 1.1 1.4 .8 .7 .5 .4 .5 .5 .5 .5 .9 .9 .9 .9 .7 .6 .6
.5 .6 .6 .7 .6 .6 .6 .6 .5 .5 .8 1.4 1.1 .6 .6 .7 .6 .6 .5 .5 .6 1.0 .6 .6 .6 .6 .6 .5 .6 .6 .8 .7 .7 .7 .7 .6 .7
.6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .9 1.0 .7 .6 .6 .7 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .7 .6 .6 .7 .6 .6 .7 .6 .7 .7
.6 .6 .5 .6 .6 .5 .6 .6 .6 .6 .8 .8 .7 .6 .7 .7 .8 .8 .7 .7 .7 .6 .6 .6 .6 .6 .6 .6 .5 .6 .8 .7 .6 .6 .6 .6
.6 .6 .6 .6 .6 .6 .6 .7 .7 .7 .7 1.0 .7 .6 .5 .6 .7 .7 .7 .7 .7 .7 .7 .9 .8 .7 .9 1.0 1.1 1.1 1.2 1.2 .9 .7 .6 .6
.8 .7 .8 .9 1.2 1.4 1.3 1.1 1.2 1.2 1.0 1.3 1.0 .8 .9 1.0 1.3 1.4 1.4 1.5 1.7 1.6 1.7 1.7 1.6 1.5 1.9 2.2 2.0 2.1 1.9 1.6 1.5 1.6 1.3 .8
1.1 1.0 1.1 1.2 1.1 1.2 1.4 1.8 1.6 1.1 .9 1.1 1.2 1.2 1.1 1.2 1.3 1.5 1.2 1.3 1.5 1.6 1.8 2.0 2.2 2.2 2.0 1.9 1.9 1.7 1.6 1.6 1.5 1.7 1.4 1.2

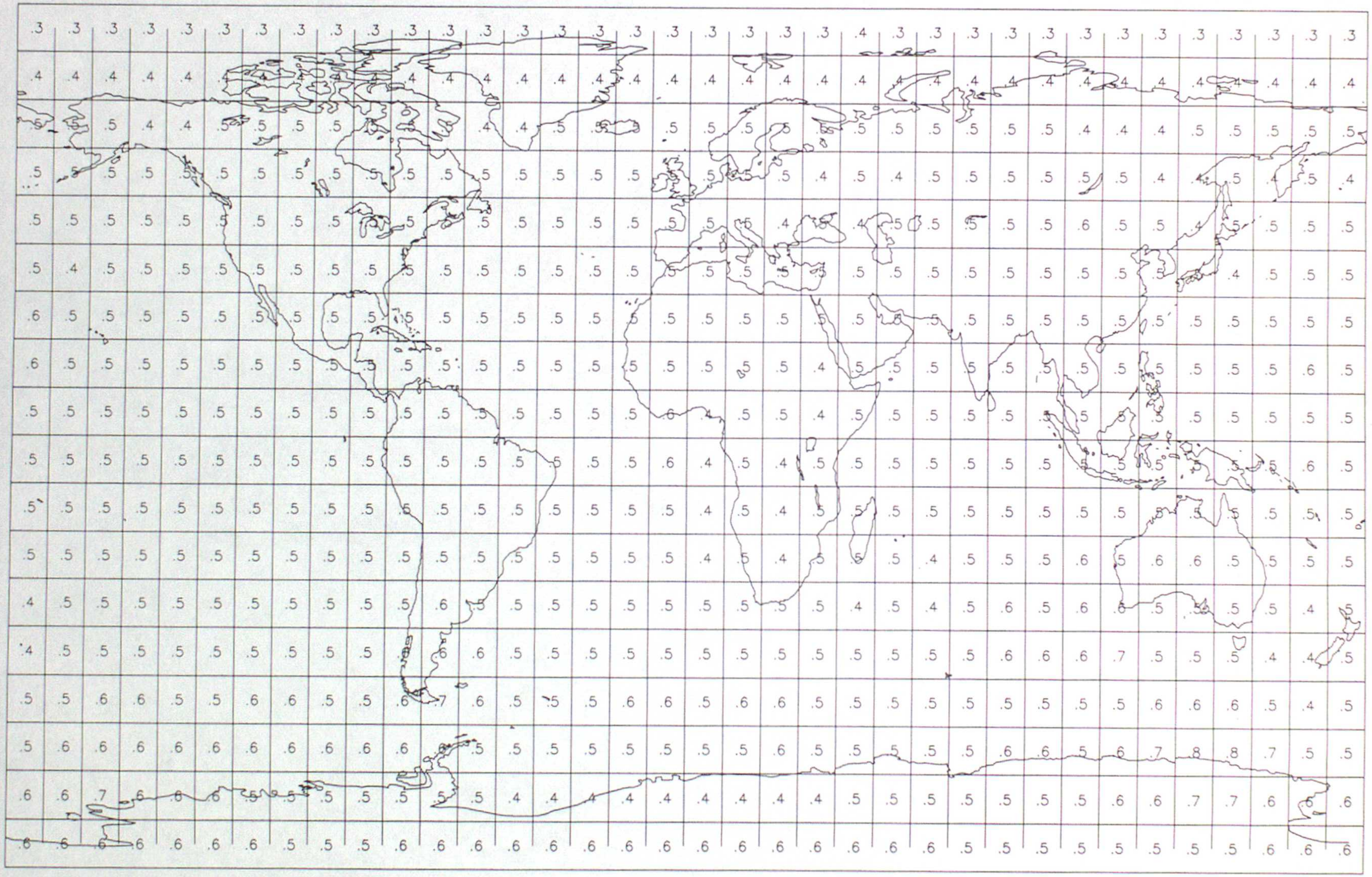
ATOVS : MEAN O-B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)
OCTOBER 2000 : AMSUA-7 Channel (300 hPa)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 36

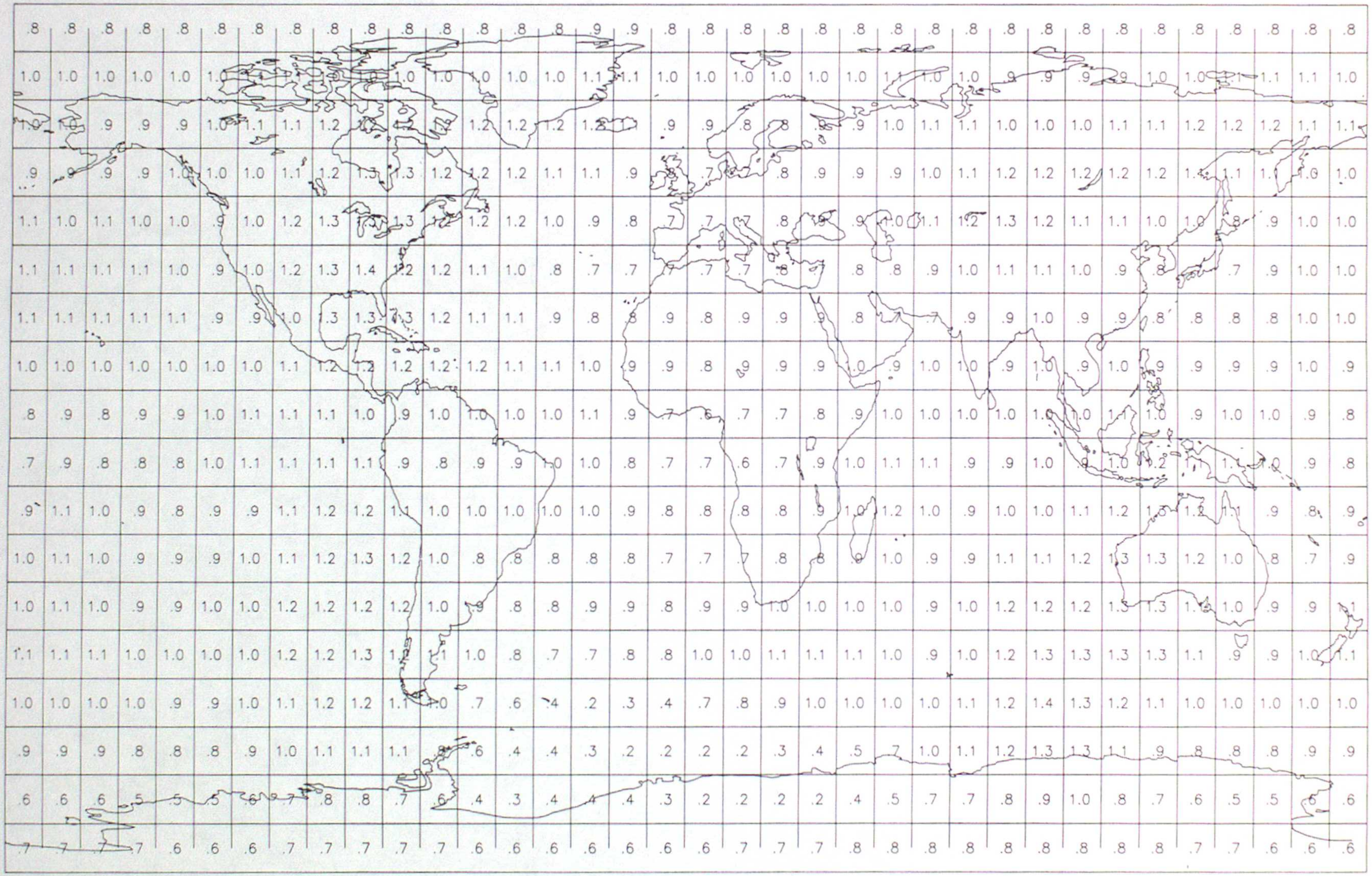

.3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .4 .4 .3 .3
.6 .6 .5 .5 .5 .6 .5 .5 .6 .6 .5 .5 .6 .6 .7 .6 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .6 .6 .6 .6
.7 .7 .6 .6 .6 .6 .6 .6 .6 .7 .7 .8 .6 .7 .7 .6 .6 .5 .5 .5 .4 .5 .4 .4 .4 .4 .5 .6 .6 .6 .7 .7 .7 .6 .7 .7
.5 .6 .5 .5 .4 .5 .5 .5 .5 .6 .6 .6 .6 .6 .5 .5 .4 .4 .4 .4 .2 .3 .3 .4 .5 .5 .6 .7 .7 .7 .7 .7 .7 .6 .6 .7
.4 .4 .5 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .3 .4 .3 .2 .4 .3 .3 .4 .5 .6 .7 .8 .7 .6 .5 .5 .6 .5 .6
.3 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .2 .2 .2 .2 .2 .3 .4 .1 .2 .2 .2 .2 .3 .5 .7 .6 .4 .4 .4 .2 .3 .3 .3
.3 .2 .2 .2 .2 .2 .2 .2 .2 .3 .2 .3 .3 .3 .2 .2 .2 .2 .2 .0 .1 .0 .1 .1 .2 .3 .3 .3 .2 .2 .2 .2 .2 .2 .2 .1
.2 .1 .1 .1 .1 .2 .2 .2 .2 .2 .2 .3 .2 .2 .2 .2 .2 .2 .1 .0 .1 .0 .1 .1 .2 .3 .2 .3 .2 .2 .2 .2 .2 .2 .2 .1
.2 .1 .1 .1 .1 .2 .2 .2 .2 .1 .2 .1 .1 .2 .2 .2 .2 .3 .1 .1 .2 .1 .1 .2 .2 .3 .2 .2 .2 .2 .2 .2 .2 .2 .3 .1
.1 .1 .1 .1 .1 .2 .2 .2 .2 .1 .2 .2 .2 .2 .2 .2 .2 .2 .0 .2 .1 .2 .2 .2 .2 .3 .2 .2 .2 .3 .3 .2 .2 .2 .2 .1
.1 .2 .1 .2 .2 .2 .2 .3 .2 .2 .3 .3 .3 .3 .2 .2 .2 .1 .0 .1 .1 .1 .1 .2 .2 .3 .3 .3 .2 .2 .2 .2 .2 .1 .2 .1
.2 .3 .3 .2 .3 .3 .3 .4 .4 .4 .3 .3 .3 .3 .2 .2 .2 .2 .1 .2 .1 .2 .2 .2 .2 .3 .4 .4 .3 .3 .3 .3 .2 .2 .2 .3
.4 .5 .4 .4 .4 .4 .4 .5 .5 .5 .5 .4 .4 .3 .3 .3 .4 .2 .3 .4 .4 .4 .4 .4 .4 .4 .6 .6 .5 .5 .5 .5 .4 .4 .4 .5
.6 .7 .6 .5 .5 .4 .5 .5 .5 .5 .5 .5 .4 .3 .3 .3 .3 .2 .5 .5 .6 .6 .6 .6 .6 .6 .8 .8 .8 .8 .7 .6 .6 .5 .5 .7
.7 .6 .7 .6 .6 .6 .6 .6 .5 .5 .5 .4 .3 .2 .1 .1 .1 .1 .3 .4 .6 .7 .7 .8 .8 .8 1.0 1.1 1.0 .9 .9 .9 .8 .8 .7 .7
.8 .7 .7 .7 .6 .6 .5 .5 .5 .5 .5 .4 .3 .2 .2 .1 .0 .0 .0 .1 .3 .4 .5 .6 .7 .9 .9 1.0 1.1 1.0 .9 .9 .9 .8 .8 .7
.5 .5 .6 .6 .6 .6 .4 .3 .3 .3 .2 .2 .1 .1 .2 .2 .1 .1 .1 .2 .3 .4 .4 .4 .4 .5 .7 .9 .9 .9 .9 .9 .8 .7 .6 .6
.7 .7 .7 .7 .6 .6 .6 .6 .6 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .6 .7 .6 .7 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8

ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
OCTOBER 2000 : AMSUA-7 channel (300 hPa)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 37

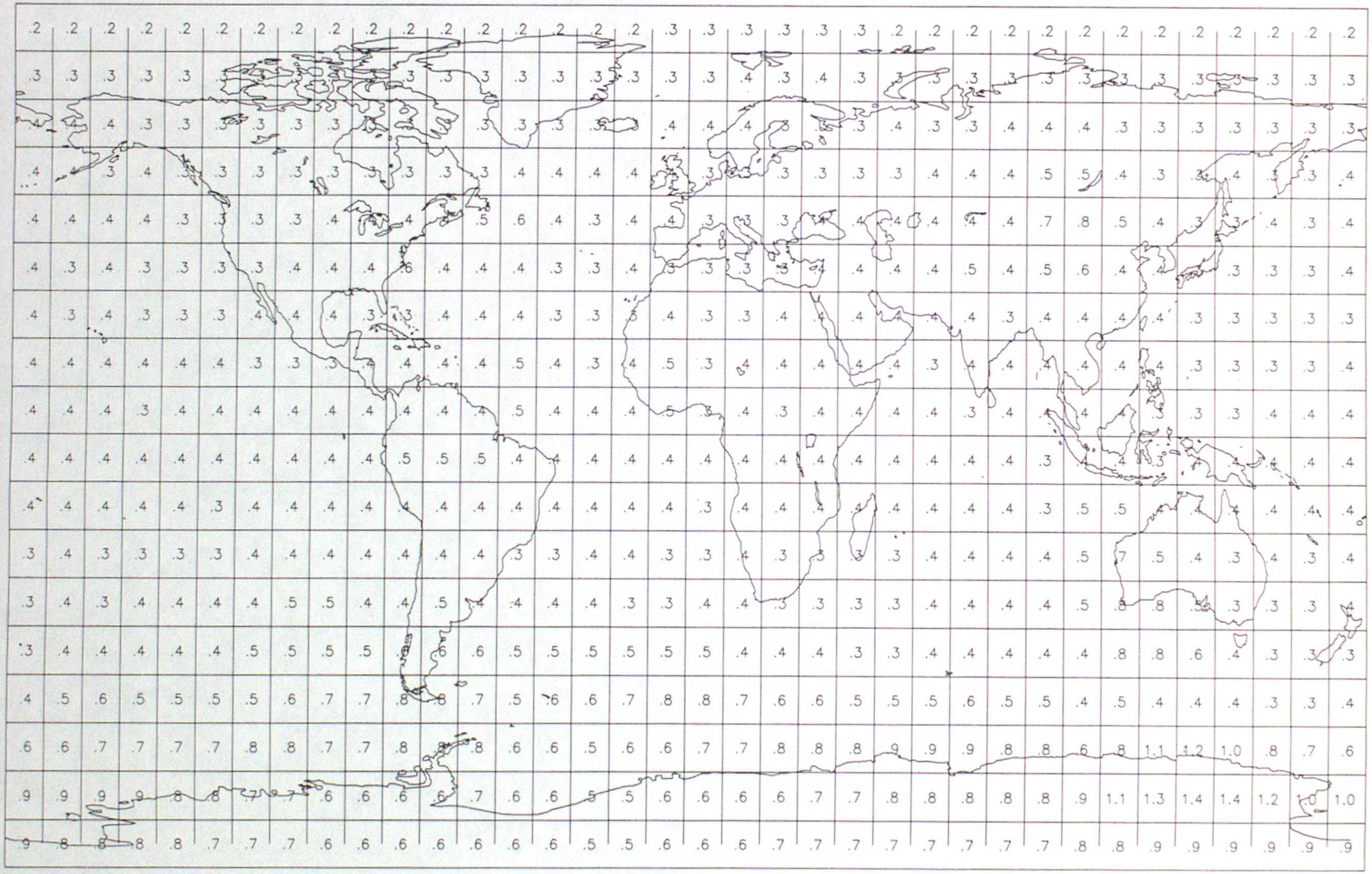

.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.5 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .4 .5 .5 .5 .5 .5 .5 .4 .4 .5 .4 .5 .4
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .4 .5 .5 .5 .5 .5 .6 .5 .5 .4 .5 .5 .5 .5
.5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5
.6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .4 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .4 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .4 .5 .5 .5 .4 .5 .5 .5 .6 .5 .6 .6 .5 .5 .5 .5
.4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .4 .5 .6 .5 .6 .6 .5 .5 .5 .5 .4 .5
.4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .6 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .6 .6 .7 .5 .5 .5 .4 .4 .5
.5 .5 .6 .6 .5 .5 .6 .6 .5 .5 .6 .7 .6 .5 .5 .5 .6 .6 .5 .6 .6 .5 .5 .5 .5 .5 .5 .5 .5 .6 .6 .6 .5 .4 .5
.5 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .6 .6 .5 .6 .7 .8 .8 .7 .5 .5
.6 .6 .7 .6 .6 .6 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .5 .5 .5 .6 .6 .7 .7 .6 .6 .6
.6 .6 .6 .6 .6 .6 .6 .5 .5 .5 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .5 .5 .5 .5 .5 .5 .5 .5 .6 .6 .6

ATOVS : MEAN O-B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C) FIGURE 38
OCTOBER 2000 : AMSUA-9 Channel (100 hPa)
NOAA-15, USING ALL OBSERVATIONS


.8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .9 .9 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8
1.0 1.0 1.0 1.0 1.0 1.0 1.1 1.1 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.1 1.1 1.0 1.0 1.0 1.0 1.0 1.0 1.1 1.0 1.0 .9 .9 .9 .9 1.0 1.0 1.1 1.1 1.1 1.0
1.0 1.0 .9 .9 .9 1.0 1.1 1.1 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.1 .9 .9 .8 .8 .9 .9 1.0 1.1 1.1 1.0 1.0 1.0 1.1 1.1 1.2 1.2 1.2 1.1 1.1
.9 .9 .9 .9 1.0 1.0 1.0 1.1 1.2 1.3 1.3 1.2 1.2 1.2 1.1 1.1 .9 .8 .7 .7 .8 .9 .9 .9 1.0 1.1 1.2 1.2 1.2 1.2 1.2 1.4 1.1 1.1 1.0 1.0
1.1 1.0 1.1 1.0 1.0 .9 1.0 1.2 1.3 1.3 1.3 1.2 1.2 1.2 1.0 .9 .8 .7 .7 .7 .8 .9 .9 1.0 1.1 1.2 1.3 1.2 1.1 1.1 1.0 1.0 .8 .9 1.0 1.0
1.1 1.1 1.1 1.1 1.0 .9 1.0 1.2 1.3 1.4 1.2 1.2 1.1 1.0 .8 .7 .7 .7 .7 .7 .8 .7 .8 .8 .9 1.0 1.1 1.1 1.0 .9 .8 .7 .9 1.0 1.0
1.1 1.1 1.1 1.1 1.1 .9 .9 1.0 1.3 1.3 1.3 1.2 1.1 1.1 .9 .8 .8 .9 .8 .9 .9 .9 .8 .7 .7 .9 .9 1.0 .9 .9 .8 .8 .8 .8 1.0 1.0
1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.1 1.2 1.2 1.2 1.2 1.2 1.1 1.1 1.0 .9 .9 .8 .9 .9 .9 1.0 .9 1.0 1.0 .9 1.0 .9 1.0 .9 .9 .9 .9 1.0 .9
.8 .9 .8 .9 .9 1.0 1.1 1.1 1.1 1.0 .9 1.0 1.0 1.0 1.0 1.1 .9 .7 .6 .7 .7 .8 .9 1.0 1.0 1.0 1.0 1.0 1.0 1.1 1.0 .9 1.0 1.0 .9 .8
.7 .9 .8 .8 .8 1.0 1.1 1.1 1.1 1.1 .9 .8 .9 .9 1.0 1.0 .8 .7 .7 .6 .7 .9 1.0 1.1 1.1 .9 .9 1.0 .9 1.0 1.2 1.1 1.1 1.0 .9 .8
.9 1.1 1.0 .9 .8 .9 .9 1.1 1.2 1.2 1.1 1.0 1.0 1.0 1.0 1.0 .9 .8 .8 .8 .8 .9 1.0 1.2 1.0 .9 1.0 1.0 1.1 1.2 1.3 1.2 1.1 .9 .8 .9
1.0 1.1 1.0 .9 .9 .9 1.0 1.1 1.2 1.3 1.2 1.0 .8 .8 .8 .8 .8 .7 .7 .7 .8 .8 .9 1.0 .9 .9 1.1 1.1 1.2 1.3 1.3 1.2 1.0 .8 .7 .9
1.0 1.1 1.0 .9 .9 1.0 1.0 1.2 1.2 1.2 1.2 1.0 .9 .8 .8 .9 .9 .8 .9 .9 1.0 1.0 1.0 1.0 .9 1.0 1.2 1.2 1.2 1.3 1.3 1.2 1.0 .9 .9 1.1
1.1 1.1 1.1 1.0 1.0 1.0 1.0 1.2 1.2 1.3 1.2 1.1 1.0 .8 .7 .7 .8 .8 1.0 1.0 1.1 1.1 1.1 1.0 .9 1.0 1.2 1.3 1.3 1.3 1.3 1.1 .9 .9 1.0 1.1
1.0 1.0 1.0 1.0 .9 .9 1.0 1.1 1.2 1.2 1.1 1.0 .7 .6 .4 .2 .3 .4 .7 .8 .9 1.0 1.0 1.0 1.0 1.1 1.2 1.4 1.3 1.2 1.1 1.0 1.0 1.0 1.0 1.0
.9 .9 .9 .8 .8 .8 .9 1.0 1.1 1.1 1.1 .8 .6 .4 .4 .3 .2 .2 .2 .2 .3 .4 .5 .7 1.0 1.1 1.2 1.3 1.3 1.1 .9 .8 .8 .8 .9 .9
.6 .6 .6 .5 .5 .5 .6 .7 .8 .8 .7 .6 .4 .3 .4 .4 .4 .3 .2 .2 .2 .2 .4 .5 .7 .7 .8 .9 1.0 .8 .7 .6 .5 .5 .6 .6
.7 .7 .7 .7 .6 .6 .6 .7 .7 .7 .7 .7 .6 .6 .6 .6 .6 .6 .6 .7 .7 .7 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .7 .7 .6 .6 .6

ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
OCTOBER 2000 : AMSUA-9 channel (100 hPa)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 39



.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
.3	.3	.3	.3	.3	.3	.3	[illegible]	.3	[illegible]	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.4	.4	.4	.3	.3	.3	.3	.3	.3	[illegible]	.3	[illegible]	.3	.3	.3	.3	.3	.4	.4	.4	.3	.3	.3	.4	.3	.3	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3
.4	.4	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	[illegible]	.3	.3	.3	.3	.3	.3	.4	.4	.4	.5	.5	.4	.3	.3	.4	.3	.3	.4
.4	.4	.4	.4	.3	.3	.3	.3	.4	.4	.4	.4	.5	.6	.4	.3	.4	.4	.3	.3	.3	.4	.4	.4	.4	.4	.4	.7	.8	.5	.4	.3	.3	.4	.3	.4
.4	.3	.4	.3	.3	.3	.3	.4	.4	.4	.6	.4	.4	.4	.3	.3	.4	.3	.3	.3	.3	.4	.4	.4	.4	.5	.4	.5	.6	.4	.4	[illegible]	.3	.3	.3	.4
.4	.3	.4	.3	.3	.3	.4	.4	.4	.3	.3	.4	.4	.4	.3	.3	.3	.4	.3	.3	.4	.4	.4	.4	.4	.4	.3	.4	.4	.4	.4	.3	.3	.3	.3	.3
.4	.4	.4	.4	.4	.4	.3	.3	.3	.4	.4	.4	.4	.5	.4	.3	.4	.5	.3	.4	.4	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.4
.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.5	.3	.4	.3	.4	.4	.4	.4	.3	.4	.4	.4	.4	.3	.3	.3	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.4	.4	.3	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.4	.4	.3	.5	.5	.4	.4	.4	.4	.4	.4
.3	.4	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.3	.3	.4	.4	.3	.3	.4	.3	.3	.3	.3	.4	.4	.4	.4	.5	.7	.5	.4	.3	.4	.3	.4
.3	.4	.3	.4	.4	.4	.4	.5	.5	.4	.4	.5	.4	.4	.4	.4	.3	.3	.4	.4	.3	.3	.3	.3	.4	.4	.4	.4	.5	.8	.8	.5	.3	.3	.3	.4
.3	.4	.4	.4	.4	.4	.5	.5	.5	.5	[illegible]	.6	.6	.5	.5	.5	.5	.5	.5	.4	.4	.4	.3	.3	.4	.4	.4	.4	.4	.8	.8	.6	.4	.3	.3	.3
.4	.5	.6	.5	.5	.5	.5	.6	.7	.7	.8	.8	.7	.5	.6	.6	.7	.8	.8	.7	.6	.6	.5	.5	.5	.6	.5	.5	.4	.5	.4	.4	.4	.3	.3	.4
.6	.6	.7	.7	.7	.7	.8	.8	.7	.7	.8	.8	.8	.6	.6	.5	.6	.6	.7	.7	.8	.8	.8	.9	.9	.9	.8	.8	.6	.8	1.1	1.2	1.0	.8	.7	.6
.9	.9	.9	.9	.8	.8	.7	.7	.6	.6	.6	.6	.7	.6	.6	.5	.5	.6	.6	.6	.6	.7	.7	.8	.8	.8	.8	.8	.9	1.1	1.3	1.4	1.4	1.2	1.0	1.0
.9	.8	.8	.8	.8	.7	.7	.7	.6	.6	.6	.6	.6	.6	.6	.5	.5	.6	.6	.6	.7	.7	.7	.7	.7	.7	.7	.7	.8	.8	.9	.9	.9	.9	.9	.9

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH: OCTOBER 2000

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoy.

Area monitored :10°N - 80°N, 85°W - 0°W

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times :All hours combined.

Elements monitored :Mean sea-level pressure (hPa)
:Wind speed (m s^{-1})
:Wind direction (degrees)

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. A positive bias indicates the observation is veered to the background

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS :15 hPa (pressure)
:25 m s^{-1} (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

MEAN SEA LEVEL PRESSURE

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
41501	26.5	-73.6	ALL	P	SUR	372	0	0	1.1	-0.2	1.1
41502	25.7	-76.9	ALL	P	SUR	191	0	0	0.8	0.5	1.0
41503	26.2	-74.1	ALL	P	SUR	186	0	0	1.2	0.1	1.2
41504	23.4	-68.8	ALL	P	SUR	206	0	0	0.9	-0.3	1.0
41505	26.3	-65.1	ALL	P	SUR	209	0	0	1.0	-1.2	1.6
41506	20.5	-68.7	ALL	P	SUR	194	0	0	0.9	-0.2	0.9
41521	33.0	-68.3	ALL	P	SUR	310	2	1	1.3	0.0	1.3
41523	26.4	-63.2	ALL	P	SUR	369	0	0	0.8	-0.5	1.0
41524	18.2	-72.1	ALL	P	SUR	163	0	0	1.6	2.1	2.7
41529	43.8	-17.2	ALL	P	SUR	19	19	100			
41571	30.2	-57.8	ALL	P	SUR	251	0	0	0.7	0.1	0.7
41572	21.9	-47.6	ALL	P	SUR	538	0	0	0.6	-0.3	0.7
41590	18.9	-54.1	ALL	P	SUR	530	0	0	0.6	0.3	0.6
41594	14.8	-70.0	ALL	P	SUR	535	0	0	0.6	0.6	0.8
41595	16.4	-68.9	ALL	P	SUR	535	0	0	0.6	0.5	0.7
41611	13.8	-53.7	ALL	P	SUR	550	0	0	0.5	0.4	0.7
41613	13.3	-36.6	ALL	P	SUR	491	1	0	0.6	0.4	0.8
41615	15.7	-50.1	ALL	P	SUR	498	0	0	0.6	-0.1	0.6
41616	21.4	-52.8	ALL	P	SUR	546	0	0	0.6	0.1	0.6
41639	18.7	-58.9	ALL	P	SUR	247	0	0	0.6	0.8	1.0
41642	19.8	-61.8	ALL	P	SUR	263	0	0	0.5	-0.3	0.6
41644	29.1	-50.7	ALL	P	SUR	366	0	0	0.8	-0.4	0.9
44513	37.6	-23.3	ALL	P	SUR	121	0	0	0.6	1.2	1.3
44608	27.3	-24.7	ALL	P	SUR	1623	0	0	0.6	0.1	0.6
44610	51.5	-28.1	ALL	P	SUR	1496	7	0	1.4	-0.2	1.4
44611	45.2	-17.8	ALL	P	SUR	646	0	0	1.0	0.7	1.3
44612	36.2	-46.3	ALL	P	SUR	706	0	0	0.9	-0.1	0.9
44613	31.8	-55.1	ALL	P	SUR	720	0	0	0.8	-0.2	0.9
44617	47.3	-13.6	ALL	P	SUR	760	1	0	1.4	0.4	1.5
44620	31.2	-41.8	ALL	P	SUR	674	0	0	0.7	-0.1	0.7
44622	53.2	-22.4	ALL	P	SUR	682	1	0	1.1	0.0	1.1
44623	37.8	-30.4	ALL	P	SUR	687	0	0	0.7	0.1	0.7
44626	41.5	-13.8	ALL	P	SUR	1325	7	1	0.8	0.2	0.8
44627	37.7	-25.6	ALL	P	SUR	194	6	3	0.6	-0.1	0.6
44628	37.5	-32.4	ALL	P	SUR	1191	8	1	0.9	0.0	0.9
44723	47.0	-19.5	ALL	P	SUR	558	0	0	2.3	-0.7	2.4
44724	42.9	-26.5	ALL	P	SUR	655	0	0	0.9	0.0	0.9
44725	46.9	-36.6	ALL	P	SUR	639	0	0	0.9	-0.4	1.0
44726	31.0	-55.9	ALL	P	SUR	962	0	0	0.8	-0.1	0.8
44727	29.6	-38.8	ALL	P	SUR	567	0	0	0.6	-0.8	1.0
44729	46.9	-24.1	ALL	P	SUR	631	0	0	1.2	0.4	1.3
44730	54.3	-20.3	ALL	P	SUR	1005	0	0	1.4	-0.1	1.4
44741	63.9	-31.4	ALL	P	SUR	655	0	0	1.2	-0.4	1.3
44743	47.2	-17.6	ALL	P	SUR	1416	12	1	0.9	0.4	1.0
44761	51.7	-41.9	ALL	P	SUR	698	0	0	0.9	-0.4	1.0
44762	47.7	-26.6	ALL	P	SUR	553	0	0	1.0	0.5	1.1
44764	44.1	-35.1	ALL	P	SUR	43	3	7	4.9	-0.5	4.9
44765	35.3	-57.8	ALL	P	SUR	655	2	0	1.1	-0.1	1.1
44767	53.5	-43.5	ALL	P	SUR	421	3	1	1.3	0.1	1.3
44770	52.4	-40.2	ALL	P	SUR	656	0	0	1.0	0.0	1.0
44771	55.8	-40.4	ALL	P	SUR	548	0	0	1.4	-0.1	1.4
44772	47.5	-27.5	ALL	P	SUR	1483	14	1	1.2	-0.7	1.4
44774	50.5	-44.3	ALL	P	SUR	541	0	0	1.1	-1.0	1.5
44775	41.5	-60.8	ALL	P	SUR	203	0	0	1.3	-0.3	1.3
44776	42.3	-55.4	ALL	P	SUR	149	0	0	1.0	0.2	1.0
44778	44.3	-53.7	ALL	P	SUR	107	0	0	0.9	0.3	0.9
44808	40.5	-69.4	ALL	P	SUR	1	0	0	0.0	0.0	0.0
44813	42.4	-70.7	ALL	P	SUR	1	0	0	0.0	-1.2	1.2
44825	40.3	-73.2	ALL	P	SUR	1	0	0	0.0	-3.0	3.0
45805	41.7	-82.4	ALL	P	SUR	1	0	0	0.0	0.6	0.6

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
56542	44.7	-63.6	ALL	P	SUR	33	0	0	0.6	-4.9	5.0
62507	35.7	-23.7	ALL	P	SUR	1028	6	1	0.7	-0.1	0.7
62508	35.9	-18.1	ALL	P	SUR	771	0	0	1.3	-0.3	1.3
62509	44.9	-7.5	ALL	P	SUR	1077	2	0	1.0	-0.1	1.0
62512	39.9	-22.9	ALL	P	SUR	368	0	0	0.6	0.2	0.7
62513	46.8	-26.2	ALL	P	SUR	396	0	0	1.2	-0.8	1.5
62514	52.8	-16.5	ALL	P	SUR	633	5	1	2.2	0.5	2.2
62516	44.9	-21.4	ALL	P	SUR	645	0	0	0.8	-0.1	0.8
62517	38.8	-22.3	ALL	P	SUR	649	0	0	0.6	-0.4	0.7
62519	43.9	-17.1	ALL	P	SUR	641	0	0	0.7	-0.8	1.1
62520	33.5	-30.7	ALL	P	SUR	1191	4	0	0.7	-0.6	0.9
62596	61.8	-21.3	ALL	P	SUR	593	0	0	1.1	-0.5	1.2
62603	49.9	-2.9	ALL	P	SUR	1	0	0	0.0	0.5	0.5
62705	54.9	-12.6	ALL	P	SUR	1	0	0	0.0	-5.1	5.1
62706	57.0	-9.9	ALL	P	SUR	1	0	0	0.0	-0.3	0.3
62709	57.0	0.0	ALL	P	SUR	1	0	0	0.0	-0.6	0.6
62751	46.6	-5.7	ALL	P	SUR	150	0	0	0.9	-0.1	0.9
62752	46.0	-6.4	ALL	P	SUR	68	0	0	0.6	0.0	0.6
62753	45.5	-7.7	ALL	P	SUR	67	0	0	0.6	-0.7	1.0
62754	47.6	-7.3	ALL	P	SUR	67	0	0	0.6	-0.8	1.0
62755	47.4	-6.2	ALL	P	SUR	4	0	0	0.4	-0.5	0.7
62756	45.5	-7.6	ALL	P	SUR	68	0	0	0.6	-0.5	0.8
62757	46.4	-5.5	ALL	P	SUR	66	0	0	0.5	0.1	0.5
62758	48.2	-8.2	ALL	P	SUR	67	0	0	0.7	-0.2	0.7
62759	47.0	-5.6	ALL	P	SUR	64	0	0	0.6	0.2	0.6
62841	45.9	-9.0	ALL	P	SUR	67	0	0	0.8	-0.1	0.8
62842	47.3	-7.2	ALL	P	SUR	67	0	0	0.6	0.1	0.6
64517	60.2	-17.4	ALL	P	SUR	1166	1	0	1.2	-0.5	1.4
64521	61.3	-25.2	ALL	P	SUR	732	0	0	1.5	-0.5	1.6
64546	49.3	-16.8	ALL	P	SUR	428	1	0	2.5	3.9	4.6
64548	60.2	-16.3	ALL	P	SUR	1574	22	1	1.3	-0.7	1.5
64698	62.4	-25.5	ALL	P	SUR	1120	0	0	1.0	-0.7	1.2
64699	58.4	-51.1	ALL	P	SUR	1120	0	0	0.9	-0.4	1.0
64846	60.7	-4.5	ALL	P	SUR	1	0	0	0.0	0.0	0.0
65593	62.7	-30.2	ALL	P	SUR	2106	26	1	3.0	-1.0	3.1
65599	60.2	-23.7	ALL	P	SUR	2396	11	0	1.3	-0.2	1.3
65600	58.1	-17.4	ALL	P	SUR	2068	7	0	1.5	-0.9	1.8
65601	60.2	-23.7	ALL	P	SUR	1528	19	1	1.1	-0.6	1.3
65602	62.1	-31.7	ALL	P	SUR	1717	16	1	1.4	-1.0	1.7
74536	42.9	-83.0	ALL	P	SUR	31	29	94	0.4	14.3	14.3
WIND SPEED											
41501	26.5	-73.6	ALL	SPEED	SUR	349	2	1	4.5	3.7	5.8
41502	25.7	-76.9	ALL	SPEED	SUR	107	0	0	3.1	-4.9	5.8
41503	26.2	-74.1	ALL	SPEED	SUR	117	0	0	2.4	0.5	2.5
41504	23.4	-68.8	ALL	SPEED	SUR	136	1	1	2.7	0.4	2.7
41505	26.3	-65.1	ALL	SPEED	SUR	159	3	2	7.9	7.1	10.6
41506	20.5	-68.7	ALL	SPEED	SUR	83	0	0	1.6	-2.8	3.2
41521	33.0	-68.3	ALL	SPEED	SUR	181	0	0	2.3	-1.6	2.8
41523	26.4	-63.2	ALL	SPEED	SUR	347	4	1	2.7	1.0	2.9
41590	18.9	-54.1	ALL	SPEED	SUR	525	0	0	1.1	-4.7	4.9
41594	14.8	-70.0	ALL	SPEED	SUR	523	7	1	3.7	1.1	3.8
41611	13.8	-53.7	ALL	SPEED	SUR	544	2	0	1.7	-0.4	1.7
41613	13.3	-36.6	ALL	SPEED	SUR	114	66	58	5.0	16.6	17.4
41615	15.7	-50.1	ALL	SPEED	SUR	156	15	10	7.3	5.2	8.9
41616	21.4	-52.8	ALL	SPEED	SUR	542	1	0	2.8	-3.3	4.3
41630	19.6	-62.7	ALL	SPEED	SUR	374	2	1	3.0	-2.7	4.0

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND SPEED											
41639	18.7	-58.9	ALL	SPEED	SUR	244	0	0	2.4	-0.7	2.5
41642	19.8	-61.8	ALL	SPEED	SUR	259	5	2	3.3	-0.4	3.3
44508	40.5	-69.4	ALL	SPEED	SUR	1	0	0	0.0	-1.6	1.6
44743	47.2	-17.6	ALL	SPEED	SUR	1379	3	0	1.8	-1.2	2.1
44808	40.5	-69.4	ALL	SPEED	SUR	1	0	0	0.0	-1.4	1.4
44825	40.3	-73.2	ALL	SPEED	SUR	2	0	0	0.3	2.7	2.7
62506	35.9	-31.0	ALL	SPEED	SUR	637	0	0	1.9	-1.3	2.3
62508	35.9	-18.1	ALL	SPEED	SUR	752	0	0	1.2	0.0	1.2
62509	44.9	-7.5	ALL	SPEED	SUR	1	0	0	0.0	-5.7	5.7
62603	49.9	-2.9	ALL	SPEED	SUR	1	0	0	0.0	3.0	3.0
62705	54.9	-12.6	ALL	SPEED	SUR	2	0	0	4.3	-7.2	8.4
62706	57.0	-9.9	ALL	SPEED	SUR	1	0	0	0.0	-2.0	2.0
62709	57.0	0.0	ALL	SPEED	SUR	1	0	0	0.0	-1.8	1.8
64846	60.7	-4.5	ALL	SPEED	SUR	1	0	0	0.0	-4.4	4.4
65600	58.1	-17.4	ALL	SPEED	SUR	2	1	50	0.0	-5.7	5.7
WINS DIRECTION											
41501	26.5	-73.6	ALL	DIRN.	SUR	224	2	1	22.3	-2.2	22.4
41503	26.2	-74.1	ALL	DIRN.	SUR	57	0	0	22.4	4.6	22.8
41504	23.4	-68.8	ALL	DIRN.	SUR	30	1	3	47.2	5.2	47.4
41505	26.3	-65.1	ALL	DIRN.	SUR	68	3	4	39.4	4.9	39.7
41521	33.0	-68.3	ALL	DIRN.	SUR	137	0	0	20.8	-13.6	24.9
41523	26.4	-63.2	ALL	DIRN.	SUR	135	4	3	91.9	27.1	95.8
41594	14.8	-70.0	ALL	DIRN.	SUR	416	7	2	11.3	-1.1	11.3
41611	13.8	-53.7	ALL	DIRN.	SUR	405	2	0	12.7	5.9	14.0
41613	13.3	-36.6	ALL	DIRN.	SUR	97	66	68	11.4	6.5	13.2
41615	15.7	-50.1	ALL	DIRN.	SUR	116	15	13	14.1	-8.0	16.2
41616	21.4	-52.8	ALL	DIRN.	SUR	77	1	1	18.4	17.1	25.1
41630	19.6	-62.7	ALL	DIRN.	SUR	15	2	13	42.2	-13.8	44.4
41639	18.7	-58.9	ALL	DIRN.	SUR	116	0	0	28.2	-3.9	28.5
41642	19.8	-61.8	ALL	DIRN.	SUR	104	5	5	18.0	-4.2	18.4
44508	40.5	-69.4	ALL	DIRN.	SUR	1	0	0	0.0	-25.8	25.8
44743	47.2	-17.6	ALL	DIRN.	SUR	1196	3	0	17.1	0.6	17.1
44825	40.3	-73.2	ALL	DIRN.	SUR	1	0	0	0.0	-11.5	11.5
62506	35.9	-31.0	ALL	DIRN.	SUR	140	0	0	13.9	5.0	14.8
62508	35.9	-18.1	ALL	DIRN.	SUR	476	0	0	12.5	-0.8	12.5
62509	44.9	-7.5	ALL	DIRN.	SUR	1	0	0	0.0	90.9	90.9
62603	49.9	-2.9	ALL	DIRN.	SUR	1	0	0	0.0	-0.9	0.9
62705	54.9	-12.6	ALL	DIRN.	SUR	2	0	0	4.8	3.8	6.1
62706	57.0	-9.9	ALL	DIRN.	SUR	1	0	0	0.0	-12.0	12.0
64846	60.7	-4.5	ALL	DIRN.	SUR	1	0	0	0.0	11.1	11.1
65600	58.1	-17.4	ALL	DIRN.	SUR	2	1	50	0.0	131.3	131.3

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: OCTOBER 2000

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:40°N - 70°N, 60°W - 0°W.
Standard of comparison		:Background field from UKMO global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP ≥ 20

NB : All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	2536	1	4	1.5	0.1	2545	0	5	0	8.3	0.5
ACA	1135	1	3	1.6	0.1	1123	0	3	0	7.3	0.6
AEA	345	1	5	1.9	0.5	345	0	7	0	10.9	0.0
AEL	217	5	20	3.0	0.4	220	0	14	0	9.1	-0.7
AFL	391	1	3	1.7	0.2	391	0	4	0	8.0	0.0
AFR	1072	0	6	1.4	-0.1	1097	0	8	0	7.9	0.6
AIH	151	1	7	2.0	-0.4	153	0	5	0	7.4	1.8
AJM	120	0	3	1.2	-0.1	122	0	3	0	8.2	1.5
AMM	101	0	8	1.5	0.3	103	0	10	0	8.8	0.7
AMX	191	2	2	1.2	0.5	191	1	3	0	10.5	0.8
ANZ	213	0	27	1.5	-0.5	208	0	28	0	5.6	0.1
AOM	301	0	2	1.4	0.6	306	1	4	0	6.9	1.4
AUA	29	0	0	1.2	0.2	29	0	0	0	5.1	-0.4
AVA	275	1	3	1.5	0.5	279	0	6	0	9.5	0.4
AZA	636	8	26	4.0	2.0	650	0	7	0	8.7	0.7
BAL	191	2	15	1.0	-0.1	196	0	15	0	7.2	0.7
BAW	1167	1	5	1.8	0.1	1184	1	6	0	7.0	0.7
BLX	29	0	0	1.7	-1.3	29	0	14	0	16.0	-1.1
BWA	61	0	7	1.8	1.3	62	3	19	0	14.4	0.2
CDN	510	0	4	1.6	0.3	515	0	4	0	6.8	1.1
CFG	448	0	2	1.5	-0.8	453	0	2	0	6.6	0.5
CGB	22	0	0	1.1	0.6	23	0	0	0	5.5	-0.8
CLX	283	0	1	1.5	-0.5	292	0	2	0	6.6	0.2
CMM	291	0	3	1.3	-0.2	293	0	2	0	5.0	0.4
COA	474	0	3	1.5	0.0	480	1	8	0	11.1	2.0
CRL	175	1	3	1.5	0.4	177	0	3	0	8.0	0.6
CTB	65	0	0	1.2	0.0	69	0	0	0	5.4	1.1
CUB	85	0	2	1.8	1.3	86	0	2	0	7.5	0.4
DAL	1117	0	16	1.5	-0.3	1141	0	18	0	8.5	0.5
DBY	311	0	3	1.4	-0.4	318	1	4	0	7.2	0.2
DCS	48	0	4	1.5	-0.2	47	0	2	0	5.5	0.2
DLH	1341	0	6	1.5	-0.1	1340	0	7	0	7.7	0.8
EEZ	39	13	100	6.4	5.8	40	0	13	0	13.3	-1.2
EIN	29	3	10	2.3	-0.1	32	0	9	0	12.9	-0.4
ELY	137	1	7	2.0	-0.1	138	1	5	0	6.7	1.5
EWW	100	2	6	1.8	0.6	100	0	6	0	11.1	0.7
FDX	703	0	7	1.6	0.5	713	0	9	0	9.0	0.9
FIN	284	0	3	1.5	0.3	275	0	5	0	7.9	0.2
GAF	29	0	7	2.4	-1.0	29	0	7	0	7.7	0.0
GCO	134	1	4	1.5	0.0	136	0	100	0	16.7	4.2
GRL	40	0	0	1.1	-0.1	39	0	0	0	3.7	0.3
GTI	171	0	9	1.9	-0.5	174	0	8	0	8.4	1.1
HLF	51	0	8	2.3	-0.7	54	0	6	0	5.6	1.0
IBE	1215	1	11	1.7	0.6	1212	1	12	0	9.2	1.2
ICE	1139	0	3	1.5	0.1	1127	0	3	0	7.1	0.5
IWD	51	2	4	1.2	-0.3	52	0	2	0	6.0	0.9
JKK	218	0	5	1.5	0.3	206	0	7	0	9.0	1.4
JMC	134	0	12	1.8	1.0	135	1	14	0	8.1	0.4
KLM	1358	0	7	1.5	0.2	1384	0	8	0	7.2	0.7
LDA	89	0	1	1.6	0.3	90	0	1	0	6.9	1.6
LDI	229	10	100	3.8	1.2	229	0	6	0	9.1	0.1
LIB	108	0	2	1.8	1.2	108	0	6	0	10.4	0.6
LOT	57	0	2	1.7	-0.5	55	0	2	0	10.0	-0.9
LTU	330	0	4	1.3	0.1	334	0	4	0	6.8	0.4
MAS	37	0	3	1.5	-0.1	38	0	3	0	10.9	1.0
MON	59	0	3	1.2	0.0	59	2	5	0	6.9	2.2
MPD	176	1	7	1.8	-0.1	176	0	7	0	9.0	0.5
MPH	538	0	2	1.7	-0.5	543	0	3	0	8.0	0.5
NCA	31	0	0	1.3	0.6	31	0	0	0	6.2	0.8

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
NWA	3518	0	2	1.6	0.3	3514	0	2	0	7.0	0.5
PAC	100	0	8	2.1	0.7	106	0	9	0	9.4	0.6
RAM	73	1	7	1.4	-0.2	71	0	7	0	7.0	0.9
RCH	69	1	6	1.9	0.8	71	1	13	0	13.8	2.5
RJA	28	4	4	1.1	-0.3	28	0	0	0	7.5	2.4
ROY	67	1	3	1.5	-0.4	65	0	3	0	8.3	0.3
RRR	84	2	6	1.6	0.3	83	1	6	0	6.4	0.0
RZO	70	0	9	1.1	-0.5	70	1	11	0	9.7	-0.3
SAS	707	0	33	1.4	-0.3	711	0	34	0	6.9	0.5
SIA	144	1	2	1.3	-0.4	143	1	5	0	9.1	0.4
SLR	119	0	12	1.4	-0.4	119	0	13	0	6.3	0.1
SVA	64	0	0	1.7	-0.6	70	0	1	0	5.9	1.0
SWR	55	0	7	1.4	0.3	54	0	9	0	10.2	3.4
TAP	275	0	9	1.2	-0.1	273	0	10	0	9.1	0.9
TLX	29	0	7	1.7	0.9	28	0	7	0	8.4	-1.1
TSC	143	0	2	1.4	0.1	142	0	9	0	11.1	1.4
TWA	728	0	6	2.1	0.3	712	0	6	0	9.2	1.3
UAL	1606	0	100	1.7	-0.2	1657	0	100	0	6.9	0.8
UPS	910	0	12	1.8	0.3	923	0	13	0	7.7	0.9
USA	180	0	2	1.6	0.3	152	1	5	0	9.3	1.4
VIR	1049	0	4	2.0	0.2	1057	0	2	0	6.8	0.7
VKG	48	0	2	1.9	-0.9	49	2	4	0	6.2	1.4
WOA	137	0	12	1.7	0.6	141	1	13	0	7.7	1.7
EU	15650	0	15	1.2	-0.1	15650	0	15	0	5.2	0.5
KL	3278	0	15	1.3	0.7	3271	0	15	0	5.2	1.0
LH	301	0	10	1.5	1.0	303	0	10	0	5.0	1.1
N	471	0	4	2.3	0.6	482	0	5	0	8.9	0.4
US ACARS	17704	0	26	1.4	0.5	17701	0	20	0	5.5	0.6

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: OCTOBER 2000

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from selected radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored

- :NUM OBS :Number of observations available at level shown during period.
- :NUM GROSS :Number of gross errors at level shown during period.
- :SD :SD of difference of observations from background values at level shown excluding those with gross errors.
- :BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBLK	12	Z	100	9	0	10.3	41.2	39.9
ELML7	00	Z	100	9	0	15.5	30.7	26.4
ELML7	12	Z	100	13	0	12.9	29.9	27.0
FNOR	00	Z	100	6	0	12.7	33.5	31.0
FNOR	12	Z	100	3	0	9.3	26.0	24.3
FNOU	00	Z	100	13	0	24.0	41.3	33.6
FNOU	12	Z	100	13	0	26.4	43.0	33.9
FNPH	00	Z	100	9	0	8.1	21.7	20.1
FNPH	12	Z	100	9	0	12.3	19.2	14.8
FNRS	00	Z	100	12	0	11.7	25.7	22.9
FNRS	12	Z	100	9	0	9.6	15.3	12.0
LDWR	00	Z	100	23	0	8.6	12.2	-8.6
LDWR	12	Z	100	23	0	8.3	12.4	-9.2
OVYA2	00	Z	100	6	0	9.7	10.2	3.2
OVYA2	12	Z	100	6	0	17.7	19.3	-7.7
OXYH2	00	Z	100	18	0	25.2	25.2	-1.1
OXYH2	12	Z	100	17	0	24.0	25.6	-9.0
ZCBP6	00	Z	100	7	0	34.1	34.3	-3.7
ZCBP6	12	Z	100	3	0	32.8	33.0	-3.7
03953	00	Z	100	26	0	10.2	22.7	20.3
03953	12	Z	100	31	0	17.5	28.5	22.5
04018	00	Z	100	29	0	8.4	12.8	9.7
04018	12	Z	100	31	0	16.2	17.8	7.4
04220	00	Z	100	30	0	11.7	11.9	2.3
04220	12	Z	100	31	0	11.2	12.0	4.4
04270	00	Z	100	26	0	8.1	8.7	-3.0
04270	12	Z	100	30	0	12.1	12.1	-0.3
04339	00	Z	100	28	0	12.5	12.7	-2.3
04339	12	Z	100	30	0	8.5	8.5	0.2
04360	00	Z	100	30	0	8.6	8.7	1.6
04360	12	Z	100	30	0	9.8	12.8	-8.2
08001	00	Z	100	27	0	26.0	26.7	-5.8
08001	12	Z	100	29	0	26.8	28.8	-10.5
08508	00	Z	100	30	0	9.4	28.9	27.3
08508	12	Z	100	30	0	14.2	31.9	28.6
08522	12	Z	100	30	0	9.8	20.1	17.5
08594	12	Z	100	18	0	38.0	45.3	24.7
71600	00	Z	100	30	0	11.7	16.1	11.0
71600	12	Z	100	31	0	12.8	16.5	10.4
72201	00	Z	100	27	0	24.9	27.9	12.7
72201	12	Z	100	31	0	32.9	36.0	14.7
72402	00	Z	100	28	0	14.6	26.3	21.9
72402	12	Z	100	31	0	15.5	39.1	35.9
74494	00	Z	100	25	0	12.6	13.2	3.8
74494	12	Z	100	28	0	11.5	11.8	-2.8
78016	00	Z	100	25	0	18.7	44.6	40.5
78016	12	Z	100	27	0	37.1	54.6	40.1

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: OCTOBER 2000

Monitoring procedures:

Period :One calendar month.

Data monitored :Reports from selected radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	12	Z	500	1	0	0.0	2.0	-2.0
DBLK	12	Z	500	9	0	5.1	14.7	13.8
ELML7	00	Z	500	14	0	8.2	11.4	7.9
ELML7	12	Z	500	16	0	10.3	11.5	5.3
FNOR	00	Z	500	7	0	11.7	14.2	8.1
FNOR	12	Z	500	4	0	7.2	8.1	3.8
FNOU	00	Z	500	16	0	8.2	9.3	4.4
FNOU	12	Z	500	16	0	11.2	15.4	10.6
FNPH	00	Z	500	14	0	12.0	12.2	-1.8
FNPH	12	Z	500	11	0	9.6	10.1	-3.1
FNRS	00	Z	500	12	0	6.4	6.7	-1.9
FNRS	12	Z	500	11	0	7.7	8.0	2.2
LDWR	00	Z	500	24	0	9.3	9.3	-0.2
LDWR	12	Z	500	23	1	9.8	11.9	-6.7
OVYA2	00	Z	500	8	0	13.3	15.9	8.6
OVYA2	12	Z	500	7	0	8.6	9.3	3.4
OXYH2	00	Z	500	20	0	14.7	18.5	-11.2
OXYH2	12	Z	500	17	0	12.7	16.5	-10.5
ZCBP6	00	Z	500	7	0	21.3	22.1	-6.0
ZCBP6	12	Z	500	3	0	12.3	13.1	-4.7
03953	00	Z	500	29	0	14.9	16.6	7.4
03953	12	Z	500	31	0	21.5	26.4	15.3
04018	00	Z	500	30	0	10.6	14.0	9.0
04018	12	Z	500	31	0	10.2	15.4	11.5
04220	00	Z	500	30	0	8.1	8.1	0.2
04220	12	Z	500	31	0	10.0	10.1	0.7
04270	00	Z	500	29	0	10.1	10.2	-0.7
04270	12	Z	500	30	0	9.9	10.2	-2.3
04339	00	Z	500	28	0	9.8	15.3	11.7
04339	12	Z	500	30	0	8.4	9.9	5.2
04360	00	Z	500	30	0	8.3	8.5	-1.6
04360	12	Z	500	31	0	10.7	11.0	-2.5
08001	00	Z	500	29	0	13.9	14.3	-3.5
08001	12	Z	500	29	0	14.8	15.0	-2.6
08508	00	Z	500	30	0	8.3	9.7	5.0
08508	12	Z	500	31	0	8.9	10.6	5.6
08522	12	Z	500	30	0	8.4	10.9	6.9
08594	12	Z	500	23	0	14.6	14.6	1.0
60020	00	Z	500	29	0	11.8	13.0	5.3
60020	12	Z	500	29	0	12.5	13.9	6.0
71600	00	Z	500	30	0	12.9	12.9	-1.1
71600	12	Z	500	31	0	9.9	10.9	4.6
72201	00	Z	500	27	0	10.4	10.4	-1.1
72201	12	Z	500	31	0	8.5	10.5	-6.1
72402	00	Z	500	28	0	8.9	8.9	-0.1
72402	12	Z	500	31	0	7.7	7.7	-0.5
74494	00	Z	500	25	0	12.2	13.1	-4.9
74494	12	Z	500	28	0	12.3	13.6	-5.8
78016	00	Z	500	25	0	14.8	26.1	21.5
78016	12	Z	500	28	0	14.0	22.4	17.5

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: OCTOBER 2000

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBLK	12	V	100	14	0	0	5.8	-2.2	0.6
ELML7	00	V	100	8	0	0	4.1	-1.3	0.7
ELML7	12	V	100	9	0	0	4.7	-0.5	1.1
FNOR	00	V	100	6	0	0	3.2	1.1	-0.4
FNOR	12	V	100	4	0	0	5.8	-3.4	-1.4
FNOU	00	V	100	15	0	0	5.6	-1.7	0.3
FNOU	12	V	100	13	0	0	4.0	-0.7	0.1
FNPH	00	V	100	9	0	0	3.8	0.1	2.9
FNPH	12	V	100	7	0	0	5.0	0.1	-0.4
FNRS	00	V	100	11	0	0	4.2	0.0	-0.9
FNRS	12	V	100	6	0	0	4.4	1.5	-1.7
LDWR	00	V	100	24	0	0	3.2	0.0	-0.2
LDWR	12	V	100	23	0	0	2.8	0.7	0.3
OVYA2	00	V	100	6	0	0	4.8	1.5	-1.0
OVYA2	12	V	100	5	0	0	3.7	1.9	-0.5
OXYH2	00	V	100	14	0	0	3.9	1.0	1.1
OXYH2	12	V	100	13	0	7	6.7	-0.7	1.0
ZCBP6	00	V	100	7	0	0	4.0	-1.0	-0.9
ZCBP6	12	V	100	3	0	0	5.0	-1.8	3.5
03953	00	V	100	27	0	0	4.7	-0.3	0.6
03953	12	V	100	31	0	0	3.1	-0.4	0.7
04018	00	V	100	29	0	0	3.5	-0.2	0.5
04018	12	V	100	31	0	0	3.6	-0.2	-0.2
04220	00	V	100	31	0	0	2.8	0.2	0.5
04220	12	V	100	31	0	0	2.9	0.3	0.9
04270	00	V	100	27	0	0	4.3	-0.4	1.3
04270	12	V	100	28	0	0	4.6	0.4	0.4
04339	00	V	100	28	0	3	6.4	1.1	-0.5
04339	12	V	100	30	0	0	5.5	0.0	0.0
04360	00	V	100	31	0	0	2.8	0.4	0.0
04360	12	V	100	30	0	0	2.7	-0.5	0.0
08001	00	V	100	26	0	0	5.3	1.0	0.2
08001	12	V	100	23	0	0	4.5	-0.3	-0.4
08508	00	V	100	14	0	0	5.8	0.6	1.3
08508	12	V	100	15	0	0	5.4	-0.7	-0.9
08522	12	V	100	28	0	0	4.8	-0.4	1.3
08594	12	V	100	18	0	100	8.0	-3.0	1.7
71600	00	V	100	31	0	0	4.2	1.3	0.5
71600	12	V	100	31	0	0	4.0	0.6	0.7
72201	00	V	100	27	0	0	3.2	-0.4	0.2
72201	12	V	100	31	0	0	3.2	-1.6	-1.0
72402	00	V	100	28	0	0	4.4	0.4	0.8
72402	12	V	100	31	0	0	4.3	0.9	0.2
74494	00	V	100	26	0	0	2.8	-0.1	0.9
74494	12	V	100	28	0	0	3.0	0.1	1.3
78016	00	V	100	26	0	0	4.9	-0.2	0.1
78016	12	V	100	27	0	0	5.2	-0.6	0.2

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: OCTOBER 2000

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	12	V	500	5	0	0	9.9	-2.8	-1.0
DBLK	12	V	500	14	0	0	3.7	0.2	-1.1
ELML7	00	V	500	15	0	0	3.0	0.2	0.9
ELML7	12	V	500	13	0	0	3.9	-0.3	0.5
FNOR	00	V	500	8	0	0	3.6	-1.7	0.8
FNOR	12	V	500	3	0	0	4.7	-3.2	2.8
FNOU	00	V	500	15	0	0	3.4	1.1	0.6
FNOU	12	V	500	15	0	0	3.7	0.8	1.6
FNPH	00	V	500	10	0	0	5.0	-0.9	-0.6
FNPH	12	V	500	7	0	0	4.3	0.4	1.1
FNRS	00	V	500	10	0	0	3.4	-1.7	0.6
FNRS	12	V	500	8	0	0	4.0	-0.2	1.1
LDWR	00	V	500	25	0	0	4.1	0.0	-0.7
LDWR	12	V	500	23	0	4	6.6	-1.6	1.2
OVYA2	00	V	500	9	0	0	6.3	-0.7	2.1
OVYA2	12	V	500	6	0	0	2.6	0.0	-0.2
OXYH2	00	V	500	20	0	0	4.8	0.2	1.2
OXYH2	12	V	500	14	0	0	4.4	-0.6	1.1
ZCBP6	00	V	500	7	0	0	4.2	-1.7	1.5
ZCBP6	12	V	500	3	0	0	8.9	0.2	0.1
03953	00	V	500	30	0	0	5.6	-0.1	-0.2
03953	12	V	500	31	0	0	5.1	0.0	0.7
04018	00	V	500	31	0	0	4.7	0.1	0.0
04018	12	V	500	31	0	0	4.8	0.5	-0.1
04220	00	V	500	29	0	0	5.9	-0.9	-0.5
04220	12	V	500	31	0	3	6.3	-1.5	0.0
04270	00	V	500	30	0	0	4.6	-0.5	0.9
04270	12	V	500	30	0	0	4.6	0.1	0.3
04339	00	V	500	28	0	0	6.8	1.1	-1.2
04339	12	V	500	29	0	0	5.9	1.8	-0.9
04360	00	V	500	31	0	0	4.3	-1.0	0.6
04360	12	V	500	31	0	3	5.4	0.3	1.3
08001	00	V	500	30	0	0	4.4	-0.3	0.2
08001	12	V	500	28	0	0	4.1	-0.1	0.1
08508	00	V	500	16	0	0	3.4	0.5	-0.5
08508	12	V	500	14	0	0	4.2	1.0	-1.7
08522	12	V	500	30	0	0	3.5	-0.7	-0.2
08594	12	V	500	21	0	100	4.7	-0.9	0.7
60020	00	V	500	27	0	0	4.1	0.4	0.0
60020	12	V	500	28	0	0	3.6	0.4	0.3
71600	00	V	500	31	0	0	4.6	0.6	-0.2
71600	12	V	500	31	0	0	4.3	1.2	0.0
72201	00	V	500	28	0	0	2.7	-0.2	-0.7
72201	12	V	500	31	0	0	3.0	0.7	-0.3
72402	00	V	500	28	0	0	2.8	0.5	0.0
72402	12	V	500	31	0	0	2.7	0.1	0.5
74494	00	V	500	27	0	0	4.0	-0.2	1.1
74494	12	V	500	28	0	3	6.1	-1.4	0.0
78016	00	V	500	26	0	0	5.0	-0.4	0.8
78016	12	V	500	28	0	0	3.7	0.4	0.4

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45